Appendix D
Well Development Forms

WELL DEVELOPMENT/PURGE FORM

Well ID	MW-8A	Location	Pleasant Hill	Client	UPRR
Project Name	UPPR Hookston Station	Development Contractor	ERM	Date	10/9/03
Project Number	8219.1	Development Method	Bail/Pump	Air Temperature	
Well Construction Data (Y/N)	Y	Field Supervisor	Anthony Cole	Casing Volume (gal)	.30
Depth to Water at Start	16.98	Depth to Water at End	24.20	Total Gallons Removed	.60
TD @ Start	24.53				

Time	Duration (minutes)			Volume	Depth to Water	Discharge Rate	Temp.	Cond.	pH	Suspended Solids	Turbidity	Remarks
Hrs/Min	Surge	Bail	Pump	(gallons)	(feet)	(gpm)				(mg/L)	(NTU)	(disposition of water, etc.)
1542			X	.30			71.8	19.92	7.62			Cloudy
1552			X	.60			70.5	Error	7.54			cloudy

Sampler Signature Anthony Cole

4 y copies

WELL DEVELOPMENT/PURGE FORM

Well ID MW-11A
Project Name UPPR Hookston Station
Project Number 8219.1
Well Construction Data (Y/N) Y
Depth to Water at Start 18.80
TD 24.75 At Start

Location Pleasant Hill
Development Contractor ERM
Development Method Bail/Pump
Field Supervisor Anthony Cole
Depth to Water at End 24.56
TD @ End 24.81

Client UPRR
Date 10/9/03
Air Temperature
Casing Volume (gal) 0.24
Total Gallons Removed 1.25

Time	Duration (minutes)			Volume	Depth to Water	Discharge Rate	Temp.	Cond.	pH	Suspended Solids	Turbidity	Remarks
Hrs/Min	Surge	Bail	Pump	(gallons)	(feet)	(gpm)				(mg/L)	(NTU)	(disposition of water, etc.)
11:29			X	.25			71.9	15.18	6.78		yes	Brown / turbid
12:32			X	.50			66.7	11.90	7.39		yes	brown / turbid
12:34			X	.75			66.9	11.72	7.18		yes	brown / turbid
12:37			X	1.0			66.7	12.37	7.27		yes	brown / turbid
12:39			X	1.25			66.7	12.00	7.21		yes	brown / turbid

Sampler Signature Anthony Cole

WELL DEVELOPMENT/PURGE FORM

Well ID	MW-11B	Location	Pleasant Hill	Client	UPRR
Project Name	UPPR Hookston Station	Development Contractor	ERM	Date	10/9/03
Project Number	8219.1	Development Method	Bail/Pump	Air Temperature	
Well Construction Data (Y/N)	Y	Field Supervisor	Anthony Cole	Casing Volume (gal)	1.30
Depth to Water at Start	17.80	Depth to Water at End	40.03	Total Gallons Removed	9.10
TD at start 49.55		TD @ End	49.61		

Time	Duration (minutes)			Volume	Depth to Water	Discharge Rate	Temp.	Cond.	pH	Suspended Solids	Turbidity	Remarks
Hrs/Min	Surge	Bail	Pump	(gallons)	(feet)	(gpm)				(mg/L)	(NTU)	(disposition of water, etc.)
12:55			X	1.30			68.1	17.22	7.62		yes	brown, turbid
13:07			X	2.60			66.5	17.05	7.65		NO	cloudy
13.17			X	3.90			65.9	16.54	7.64		NO	cloudy
1324			X	5.20			66.3	16.17	7.29		No	clear
1334			X	6.50			66.1	16.18	7.23		NO	clear
1342			X	7.80			66.0	17.28	7.48		NO	clear
1350			X	9.10			66.1	16.37	7.35		NO	clear

Sampler Signature Anthony Cole

UNION PACIFIC RAILROAD COMPANY
HOOKSTON STATION
WELL DEVELOPMENT
FIELD NOTES / ERM WEST 8219.10

Date: 11-4-03
Set up time: 1359
Weather: Sunny/Cool
Samplers: AVC

WELL # MW-12A

HISTORIC CONCENTRATIONS :

Location:
Construction: 1 inch pvc/
Groundwater Zone:
Screened Interval: 10 - 25 ft. bgs

Construction Depth: 25 ft. bgs
Measured Depth: NA
Depth to Packer: NA
Pump Intake: NA

Purge Setting: Discharge: / Refill:
Sample Setting: Discharge:

Depth to Water: 19.89'
Height of Water Column: 5.11
Volume of one casing: 0.21 gallons

Packer Pressure: NA
Purge Start Time: 1400
Discharge Rate: NA
Purge End Time: 1403

Purge calculations
5.11 ft. x .041 gals. / ft. x 3 =
0.63 gallons

Time	Gallons	Temp.° C	pH	EC	Water clarity
1401	.25	17.7	7.19	1.40	Clear
1402	.50	17.4	7.27	1.23	↓
1403	.65	17.6	7.29	1.19	↓

ANALYSES REQUIRED	SAMPLE TIME	CONTAINER TYPE	FILTRATION?
VOCs (8260)	1410	(2) VOA w/HCl 40ml	NO

FIELD OBSERVATIONS (Well condition, repairs needed)

PID reading when well cap opened: NA
Dissolved Oxygen reading: NA
Turbidity Measurement: NA

Disposal method of purge water: Drummed on site
Decontamination procedure: Liquinox, DI rinse

Other notes: Purged & sampled using peristaltic pump.

Sampler Signature(s) : Anthony Cole

WELL DEVELOPMENT/PURGE FORM

Well ID MW-12B
Project Name UPPR Hookston Station
Project Number 8219.1
Well Construction Data (Y/N) Y
Depth to Water at Start 19.87
TD at Start 59.25

Location Pleasant Hill
Development Contractor ERM
Development Method Bail/Pump
Field Supervisor Anthony Cole
Depth to Water at End 30.58

Client UPRR
Date 10/9/03
Air Temperature
Casing Volume (gal) 1.61
Total Gallons Removed 11.68

Time	Duration (minutes)			Volume	Depth to Water	Discharge Rate	Temp.	Cond.	pH	Suspended Solids	Turbidity	Remarks
Hrs/Min	Surge	Bail	Pump	(gallons)	(feet)	(gpm)				(mg/L)	(NTU)	(disposition of water, etc.)
1440			X	1.60			70.8	18.40	7.86		NO	cloudy
1020				3.20			66.4	16.39	6.52		Yes	Brown/Turbid
1034				4.80			65.9	16.27	7.15			↓
1045				5.40			65.3	15.20	7.64			↓
1055				7.00			65.3	15.27	7.42			Brown/Cloudy
1106				9.61			65.3	15.41	7.33			
1117				10.22			65.3	15.45	7.33			
1121				11.68			64.8	15.33	7.32			

Sampler Signature Anthony Cole

WELL DEVELOPMENT/PURGE FORM

Well ID	MW-13R	Location	Pleasant Hill	Client	UPRR
Project Name	UPPR Hookston Station	Development Contractor	ERM	Date	10/9/03
Project Number	8219.1	Development Method	Bail/Pump	Air Temperature	
Well Construction Data (Y/N)	Y	Field Supervisor	Anthony Cole	Casing Volume (gal)	.66
Depth to Water at Start	17.06	Depth to Water at End	33.86	Total Gallons Removed	2.0
TD @ start 33.83		TD @ End 33.84			

Time	Duration (minutes)			Volume	Depth to Water	Discharge Rate	Temp.	Cond.	pH	Suspended Solids	Turbidity	Remarks
Hrs/Min	Surge	Bail	Pump	(gallons)	(feet)	(gpm)				(mg/L)	(NTU)	(disposition of water, etc.)
1524			X	.66			73.4	17.10	8.19	No	No	Cloudy
1529			X	1.32			71.3	15.98	7.94	1	1	Cloudy
1536			X	1.99			71.3	16.02	7.79	5	1	

Sampler Signature Anthony Cole

WELL DEVELOPMENT/PURGE FORM

Well ID	MW-13B	Location	Pleasant Hill	Client	UPRR
Project Name	UPPR Hookston Station	Development Contractor	ERM	Date	10/9/03
Project Number	8219.1	Development Method	Bail/Pump	Air Temperature	
Well Construction Data (Y/N)	Y	Field Supervisor	Anthony Cole	Casing Volume (gal)	1.4
Depth to Water at Start	49.86	Depth to Water at End	55.36	Total Gallons Removed	5.6
TD @ Start	55.17				

Time	Duration (minutes)			Volume	Depth to Water	Discharge Rate	Temp.	Cond.	pH	Suspended Solids	Turbidity	Remarks
Hrs/Min	Surge	Bail	Pump	(gallons)	(feet)	(gpm)				(mg/L)	(NTU)	(disposition of water, etc.)
1150			X	1.4			66.7	2.62	7.50			Brown Turbid
1159				2.8			66.3	2.12	7.61			Brown/Cloudy
1205				4.2			71.3	2.27	7.87			
1213				5.6			72.6	2.28	7.80			
				Well went Dry								

Sampler Signature Anthony Cole

UNION PACIFIC RAILROAD COMPANY
HOOKSTON STATION
WELL DEVELOPMENT
FIELD NOTES/ ERM WEST 8219.10

Date: 2/24/04
Set up time: 0810
Weather: clear
Samplers: RLS, RD

WELL # MW-14A
HISTORIC CONCENTRATIONS :

Location: Bancroft @ Hookston
Construction: 2 inch pvc
Groundwater Zone:
Screened Interval: 25.0 - 35.0

Construction Depth: 35.0
Measured Depth: 33.5
Depth to Packer:
Pump Intake:

Purge Setting: Discharge: / Refill:
Sample Setting: Discharge:

Depth to Water: 15.5
Height of Water Column: 18.5
Volume of one casing: 3.0

Packer Pressure:
Purge Start Time: 0930
Discharge Rate: 0.66 g/min.
Purge End Time: 1321

Purge calculations
18.5 ft. x .163 gals. / ft. x 3 =
30 gallons

Time	Gallons	Temp.	pH	EC MS	Water clarity
1015	5	63.0	8.90	—	turbid
1100	10	68.5	9.03	10.05	"
1208	15	67.1	8.44	1.78	clearing
1233	20	72.8	7.92	1.91	"
1300	25	70.0	7.90	1.87	"
1321	30	67.1	7.90	1.89	clear

ANALYSES REQUIRED	SAMPLE TIME	CONTAINER TYPE	FILTRATION?
N/A			

FIELD OBSERVATIONS (Well condition, repairs needed)

PID reading when well cap opened:
Dissolved Oxygen reading:
Turbidity Measurement:

Disposal method of purge water: drum
Decontamination procedure: steam clean

Other notes:

surge 0845-0905, developed using bailer

Sampler Signature(s) :

Rachel Sayers

UNION PACIFIC RAILROAD COMPANY
HOOKSTON STATION
WELL DEVELOPMENT
FIELD NOTES / ERM WEST : 8219.10

Date: 2/24/04
Set up time: 0810
Weather: sunny, clear
Samplers: RLS, RD

WELL # MW-14B
HISTORIC CONCENTRATIONS :

Location: Bancroft @ Hookston
Construction: 2 inch pvc/
Groundwater Zone:
Screened Interval: 40.0-50.0

Construction Depth: 50.0
Measured Depth: 44.5/49.6 after surge
Depth to Packer:
Pump Intake:

Purge Setting: Discharge: / Refill:
Sample Setting: Discharge:

Depth to Water: 15.20
Height of Water Column: 34.8
Volume of one casing: 5.6

Packer Pressure:
Purge Start Time: 0930
Discharge Rate: 0.15 gpm
Purge End Time: 1600

Purge calculations 10
34.8 ft. x .163 gals. / ft. x 3 =
56 gallons

Time	Gallons	Temp.	pH	EC µS	Water clarity
1015	5	65.7	6.38	1.93	turbid
1105	10	70.0	8.11	2.06	"
1205	15	67.3	7.86	1.93	"
1255	20	70.3	7.87	2.04	turbid
1357	25	67.3	7.85	2.00	"
1425	30	68.7	7.73	2.00	"
1438	35	67.1	7.61	2.00	"
1458	40	66.3	7.48	2.04	clearing
1518	45	63.6	7.48	1.98	"
1536	50	63.5	7.28	1.92	"
1600	55	63.4	7.53	1.90	"

ANALYSES REQUIRED	SAMPLE TIME	CONTAINER TYPE	FILTRATION?
N/A			

FIELD OBSERVATIONS (Well condition, repairs needed)

PID reading when well cap opened:
Dissolved Oxygen reading:
Turbidity Measurement:

Disposal method of purge water: drums
Decontamination procedure: steam clean

Other notes:
surge 0845-0905, purged using bailer

Sampler Signature(s) :
Rachel Seggs

UNION PACIFIC RAILROAD COMPANY
HOOKSTON STATION
WELL DEVELOPMENT
FIELD NOTES / ERM WEST 8219.10

Date: 2/11/04
Set up time: 0830
Weather:
Samplers: RLS, RD

WELL # MW-15A

HISTORIC CONCENTRATIONS :

Location: Hampton Drive
Construction: 2 inch pvc/
Groundwater Zone:
Screened Interval: 15.0 - 25.0

Construction Depth: 25.0
Measured Depth: 24.9
Depth to Packer:
Pump Intake:

Purge Setting: Discharge: / Refill:
Sample Setting: Discharge:

Depth to Water: 15.64
Height of Water Column: 9.36
Volume of one casing: 1.52

Packer Pressure:
Purge Start Time: 0910
Discharge Rate: 1.25 g/min
Purge End Time: 0950

Purge calculations
9.36 ft. x .163 gals. / ft. x 10 = 15.2 gallons

Time	Gallons	Temp.	pH	EC µS	Water clarity
0920	5	53.3	7.80	5	turbid, over
0932	7.5	63.3	7.18	4	"
0935	10	63.2	7.18	4	"
0937	12.5	62.2	7.18	5	"
0940	15	62.0	7.18	5	"
0943	17.5	62.6	7.17	5	clearing, 356.3
0945	20	63.1	7.17	6	" 307.4
0948	22.5	62.4	7.17	6	" 246.1
0950	25	62.0	7.17	6	clear 192.6

ANALYSES REQUIRED	SAMPLE TIME	CONTAINER TYPE	FILTRATION?
N/A			

FIELD OBSERVATIONS (Well condition, repairs needed)

PID reading when well cap opened:
Dissolved Oxygen reading:
Turbidity Measurement:

Disposal method of purge water: drum
Decontamination procedure: steam clean

Other notes:

surge 0830-0850, bailed out ~ 3 gallons

Sampler Signature(s) :

Rachel Sejgs

UNION PACIFIC RAILROAD COMPANY
HOOKSTON STATION
WELL DEVELOPMENT
FIELD NOTES / ERM WEST 8219.10

Date: 2/11/04
Set up time: 0830
Weather: clear
Samplers: RLS, RD

WELL # MW-15B
HISTORIC CONCENTRATIONS :

Location: Hampton Drive
Construction: 2 inch pvc/
Groundwater Zone: [redacted]
Screened Interval: 49.0-59.0

Construction Depth: 59
Measured Depth: 56/59 after surge
Depth to Packer:
Pump Intake:

Purge Setting: Discharge: / Refill:
Sample Setting: Discharge:

Depth to Water: 17.10
Height of Water Column: 42.9
Volume of one casing: 6.99

Packer Pressure:
Purge Start Time: 1010
Discharge Rate: 0.33g/min.
Purge End Time: 1208

Purge calculations
42.9 ft. x .163 gals. / ft. x 10 = 70 gallons

Time	Gallons	Temp.	pH	EC µS	Water clarity
1016	5	59.7	7.58	1	turbid, 689
1030	10	53.8	7.17	5	" over
1047	15	62.7	7.60	8	" 1019
1105	20	62.2	7.17	8	" over
1122	25	62.6	7.17	8	" over
1140	30	59.9	7.18	8	cleaning 716.3
1158	35	60.2	7.18	6	" 226.1
1208	40	66.2	7.65	8	clear 189.6

ANALYSES REQUIRED	SAMPLE TIME	CONTAINER TYPE	FILTRATION?
N/A			

FIELD OBSERVATIONS (Well condition, repairs needed)

PID reading when well cap opened:
Dissolved Oxygen reading:
Turbidity Measurement:

Disposal method of purge water: drum
Decontamination procedure: steam clean

Other notes:
surge 0930-0950, bailed ~4 gallons

Sampler Signature(s) :
Rachel Sypes

UNION PACIFIC RAILROAD COMPANY
HOOKSTON STATION
WELL DEVELOPMENT
FIELD NOTES / ERM WEST / 8219.10

Date: 2/11/04
Set up time: 1115
Weather:
Samplers: RLS/RD

WELL # MW-15C
HISTORIC CONCENTRATIONS :

Location: Hampton Drive
Construction: 2 inch pvc/
Groundwater Zone:
Screened Interval: 90.0-95.0

Construction Depth: 95.0
Measured Depth: 94.5
Depth to Packer:
Pump Intake:

Purge Setting: Discharge: / Refill:
Sample Setting: Discharge:

Depth to Water: 16.60
Height of Water Column: 78.4
Volume of one casing: 12.7

Packer Pressure:
Purge Start Time: 1200
Discharge Rate: ~ 1 g/min
Purge End Time: 1429

Purge calculations
78.4 ft. x .163 gals. / ft. x 3 = 10
127 gallons

Time	Gallons	Temp.	pH	EC µS	Water clarity
1205	5	65.0	7.71	8	turbid, over range
1210	10	68.1	7.54	7	"
1218	15	67.7	7.65	8	"
1234	25	66.1	7.69	4	"
1251	35	69.2	7.57	3	"
1306	45	72.3	7.52	4	"
1319	55	65.4	7.59	3	"
1333	65	67.3	7.56	3	"
1346	75	65.4	7.36	3	"
1359	85	61.3	7.28	1	"
1412	96	55.6	7.84	3	"
1423	105	56.4	7.76	3	"
1429	110	58.4	7.68	4	"

ANALYSES REQUIRED	SAMPLE TIME	CONTAINER TYPE	FILTRATION?
N/A			

FIELD OBSERVATIONS (Well condition, repairs needed)

PID reading when well cap opened:
Dissolved Oxygen reading:
Turbidity Measurement:

Disposal method of purge water: drums
Decontamination procedure: steam clean

Other notes:
surged 1120-1145, bailed ~7 gallons

Sampler Signature(s) :

Raeul Sypes

UNION PACIFIC RAILROAD COMPANY
HOOKSTON STATION
WELL DEVELOPMENT
FIELD NOTES / ERM WEST 8219.10

Date: 2/13/04
Set up time: 0830
Weather:
Samplers: RLS

WELL # MW-16A

HISTORIC CONCENTRATIONS :

Location: Waterloo Ct.
Construction: 2 inch pvc/
Groundwater Zone:
Screened Interval: 15.0 - 25.0

Construction Depth: 25.0
Measured Depth: 23.4/25 after surge
Depth to Packer:
Pump Intake:

Purge Setting: Discharge: / Refill:
Sample Setting: Discharge:

Depth to Water: 15.10
Height of Water Column: 9.9
Volume of one casing: 1.61

Packer Pressure:
Purge Start Time: 0943
Discharge Rate: 1.4 g/min.
Purge End Time: 1005

Purge calculations
9.9 ft. x .163 gals. / ft. x 10 =
16.1 gallons

Time	Gallons	Temp.	pH	EC µS	Water clarity
0951	5	46.8	7.17	4	turbid, over
0955	10	56.9	7.17	3	"
0958	12.5	58.2	7.17	3	clear 74.14
1000	15	59.6	7.17	4	96.31
1003	17.5	60.5	7.17	3	85.19
1005	20	62.0	7.17	4	41.64

ANALYSES REQUIRED	SAMPLE TIME	CONTAINER TYPE	FILTRATION?
N/A			

FIELD OBSERVATIONS (Well condition, repairs needed)

PID reading when well cap opened:
Dissolved Oxygen reading:
Turbidity Measurement:

Disposal method of purge water: drum
Decontamination procedure: steam clean

Other notes:
surge 20 min, bailed out ~ 3 gallons

Sampler Signature(s) :

Rachel Sykes

UNION PACIFIC RAILROAD COMPANY
HOOKSTON STATION
WELL DEVELOPMENT
FIELD NOTES / ERM WEST 8219.10

Date: 2/13/04
Set up time:
Weather: clear, sunny
Samplers: RLS

WELL # MW-16B
HISTORIC CONCENTRATIONS :

Location: Waterloo Ct.
Construction: 2 inch pvc/
Groundwater Zone:
Screened Interval: 35.0-45.0

Construction Depth: 45.0
Measured Depth: 35.6/44.2 after surge
Depth to Packer:
Pump Intake:

Purge Setting: Discharge: / Refill:
Sample Setting: Discharge:

Depth to Water: 16.00
Height of Water Column: 28.2
Volume of one casing: 4.59

Packer Pressure:
Purge Start Time: 0855
Discharge Rate: 1.13 g/min.
Purge End Time: 0944

Purge calculations
28.2 / 46 ft. x .163 gals. / ft. x 3 = 10 gallons

Time	Gallons	Temp.	pH	EC µS	Water clarity
0900	5	43.9	7.85	4	turbid, over range
0905	10	50.2	7.80	4	"
0910	15	58.4	7.17	5	"
0915	20	62.8	7.17	5	"
0920	25	64.2	7.17	5	clearing, 491.3
0924	30	64.6	7.17	5	" 663.2
0930	35	60.0	7.17	5	" 488.5
0934	40	62.5	7.17	5	" 390.3
0939	45	63.9	7.17	5	" 472.2
0944	50	60.7	7.17	5	" 365.3

ANALYSES REQUIRED	SAMPLE TIME	CONTAINER TYPE	FILTRATION?
N/A			

FIELD OBSERVATIONS (Well condition, repairs needed)

PID reading when well cap opened:
Dissolved Oxygen reading:
Turbidity Measurement:

Disposal method of purge water: drum
Decontamination procedure: steam clean

Other notes:
surge 0835-0850, bailed out 7 gallons

Sampler Signature(s) :
Rallul Seggos

UNION PACIFIC RAILROAD COMPANY
HOOKSTON STATION
WELL DEVELOPMENT
FIELD NOTES / ERM WEST 8219.10

Date: 2/11/04
Set up time: 1500
Weather:
Samplers: RLS/RD

WELL # MW-17A
HISTORIC CONCENTRATIONS :

Location: Edinburgh Ct.
Construction: 2 inch pvc
Groundwater Zone:
Screened Interval: 21.0 - 31.0

Construction Depth: 31.0
Measured Depth: 29.4/30.8 after surge
Depth to Packer:
Pump Intake:

Purge Setting: Discharge: / Refill:
Sample Setting: Discharge:

Depth to Water: 22.8
Height of Water Column: 7.2
Volume of one casing: 1.17

Packer Pressure:
Purge Start Time: 1625
Discharge Rate: ~0.5g/min
Purge End Time: 1657

Purge calculations
7.2 ft. x .163 gals. / ft. x 10 = 11.7 gallons

Time	Gallons	Temp.	pH	EC µS	Water clarity
1635	5	59.9	7.40	5	turbid, over range
1641	7.5	59.8	7.59	5	"
1646	10	60.8	7.18	5	"
1651	12.5	61.3	7.17	5	"
1657	15	59.6	7.18	5	"

ANALYSES REQUIRED	SAMPLE TIME	CONTAINER TYPE	FILTRATION?
N/A			

FIELD OBSERVATIONS (Well condition, repairs needed)

PID reading when well cap opened:
Dissolved Oxygen reading:
Turbidity Measurement:

Disposal method of purge water: drum
Decontamination procedure: steam clean

Other notes:

surge 1545-1605, purge 2 gallons

Sampler Signature(s) :

Rachel Siggs

UNION PACIFIC RAILROAD COMPANY
HOOKSTON STATION
WELL DEVELOPMENT
FIELD NOTES / ERM WEST 8219.10

Date: 2/11/04
Set up time: 1500
Weather:
Samplers: RLS/RD

WELL # MW-17B
HISTORIC CONCENTRATIONS :

Location: Edinburgh CT.
Construction: 2 inch pvc
Groundwater Zone:
Screened Interval: 44.0-54.0

Construction Depth: 54
Measured Depth: 39.9/52.6 after surge
Depth to Packer:
Pump Intake:

Purge Setting: Discharge: / Refill:
Sample Setting: Discharge:

Depth to Water: 22.58
Height of Water Column: 30.02
Volume of one casing: 4.89

Packer Pressure:
Purge Start Time: 1535
Discharge Rate: 0.559/min
Purge End Time: 1708

Purge calculations
30.02 ft. x .163 gals. / ft. x 10 = 49 gallons

Time	Gallons	Temp.	pH	EC µS	Water clarity
1541	5	75.0	7.46	5	turbid, over range
1549	10	71.0	7.44	5	"
1558	15	65.5	7.35	4	"
1607	20	69.9	7.54	5	"
1616	25	69.5	7.58	4	"
1625	30	66.1	7.24	4	"
1633	35	58.8	7.74	4	"
1642	40	60.3	7.18	5	turbid, 958.7
1650	45	60.7	7.18	5	" 779.6
1659	50	59.9	7.17	5	clearing 615.8
1708	55	60.2	7.17	5	" 463.0

ANALYSES REQUIRED	SAMPLE TIME	CONTAINER TYPE	FILTRATION?
N/A			

FIELD OBSERVATIONS (Well condition, repairs needed)

PID reading when well cap opened:
Dissolved Oxygen reading:
Turbidity Measurement:

Disposal method of purge water: drums
Decontamination procedure: steam clean

Other notes:

surge 1500-1515, bail ~4 gallons

Sampler Signature(s) :

Rachel Seggos

UNION PACIFIC RAILROAD COMPANY
HOOKSTON STATION
WELL DEVELOPMENT
FIELD NOTES / ERM WEST 8219.10

Date: 2/10/04
Set up time: 1045
Weather:
Samplers: RLS

WELL # MW-18A
HISTORIC CONCENTRATIONS :

Location: Bancroft Rd.
Construction: 2 inch pvc/
Groundwater Zone:
Screened Interval: 14.7 - 24.7

Construction Depth: 24.7'
Measured Depth: 24.5'
Depth to Packer:
Pump Intake:

Purge Setting: Discharge: / Refill:
Sample Setting: Discharge:

Depth to Water: 18.59
Height of Water Column: 6.41
Volume of one casing: 1.04

Packer Pressure:
Purge Start Time: 1149
Discharge Rate: 0.66g/min.
Purge End Time: 1230

Purge calculations
6.41 ft. x .163 gals. / ft. x 3 = 10.4 gallons

Time	Gallons	Temp.	pH	EC/cS	Water clarity
1151	2	69.7	7.63	7	turbid, over range
1214	4	65.2	7.70	6	"
1217	6	67.6	7.78	6	turbid, 743.3
1220	8	67.4	7.75	6	" 662.7
1223	10	67.6	7.71	7	" 317.3
1227	12	67.6	7.74	8	clear 128.5
1230	14	67.8	7.18	6	" 53.7

ANALYSES REQUIRED	SAMPLE TIME	CONTAINER TYPE	FILTRATION?
N/A			

FIELD OBSERVATIONS (Well condition, repairs needed)

PID reading when well cap opened:
Dissolved Oxygen reading:
Turbidity Measurement:

Disposal method of purge water: drums
Decontamination procedure: steam clean

Other notes:
surge 15 min, bailed out 2.5 gallons

Sampler Signature(s) :

Rafael Segovia

UNION PACIFIC RAILROAD COMPANY
HOOKSTON STATION
WELL DEVELOPMENT
FIELD NOTES / ERM WEST 8219.10

Date: 2/10/04
Set up time: 1045
Weather: clear
Samplers: RLS

WELL # MW-18B
HISTORIC CONCENTRATIONS :

Location: Bancroft Rd.
Construction: 2 inch pvc/
Groundwater Zone:
Screened Interval: 32.0 - 42.0

Construction Depth: 42
Measured Depth: 39/42 after surge
Depth to Packer:
Pump Intake:

Purge Setting: Discharge: / Refill:
Sample Setting: Discharge:

Depth to Water: 18.68
Height of Water Column: 23.32
Volume of one casing: 3.80

Packer Pressure:
Purge Start Time: 1125
Discharge Rate: 0.83 g/min.
Purge End Time: 1209

Purge calculations 10
23.32 ft. x .163 gals. / ft. x 3 =
38 gallons

Time	Gallons	Temp.	pH	EC-TS	Water clarity
1131	5	72.3	7.00	5	turbid, over range
1137	10	68.5	7.68	7	11
1142	15	75.3	7.58	4	529.3
1148	20	68.9	7.72	1	516.1
1153	25	69.1	7.55	7	455.7
1158	30	67.4	7.74	7	357.1
1203	35	68.3	7.73	4	320.3, clear
1209	40	67.8	7.52	4	82.5'

ANALYSES REQUIRED	SAMPLE TIME	CONTAINER TYPE	FILTRATION?
N/A			

FIELD OBSERVATIONS (Well condition, repairs needed)

PID reading when well cap opened:
Dissolved Oxygen reading:
Turbidity Measurement:

Disposal method of purge water: drums
Decontamination procedure: steam clean

Other notes:
purged from 1050 - 1110, bailed out 4 gallons

Sampler Signature(s) :

Rachel Sypes

[redacted]

Date: 2/27/04
Set up time:
Weather: CLOUDY
Samplers: JMP

WELL # MW-19A

HISTORIC CONCENTRATIONS :

Location:
Construction: 2 inch pvc/
Groundwater Zone:
Screened Interval: 14 - 24 ft. bgs

Construction Depth: 24 ft. bgs
Measured Depth: 23.9
Depth to Packer: NA
Pump Intake: ES-(a)

Purge Setting: Discharge: NA / Refill: NA
Sample Setting: Discharge: NA

Depth to Water: 19.9
Height of Water Column: 4 FT
Volume of one casing: .652 GAL

Packer Pressure: NA
Purge Start Time: 13:30
Discharge Rate: 5 GAL/MIN
Purge End Time: 13:40

Purge calculations 10
4 ft. x .163 gals. / ft. x 8 =
6.52 gallons

Time	Gallons	Temp.	pH	EC	Water clarity
1:30	1	63.2	6.53	1.67	TURBID
1:32	2	66.3	6.56	1.55	"
1:34	3	66.3	6.51	1.65	"
1:36	4	64.2	6.57	1.61	"
1:38	5	65.2	6.62	1.60	"
1:40	6	65.1	6.56	1.68	"

4

ANALYSES REQUIRED	SAMPLE TIME	CONTAINER TYPE	FILTRATION?

FIELD OBSERVATIONS (Well condition, repairs needed)

PID reading when well cap opened: NA
Dissolved Oxygen reading: NA
Turbidity Measurement: NA

Disposal method of purge water: DRUMMED ON SITE
Decontamination procedure:

Other notes:

Sampler Signature(s) :

[redacted]

Date: 2/27/04
Set up time: 1:00
Weather: cloudy
Samplers: JMP

WELL # MW-19B

HISTORIC CONCENTRATIONS :

Location:
Construction: 2 inch pvc/
Groundwater Zone:
Screened Interval: 29 - 39 ft. bgs

Construction Depth: 39 ft. bgs
Measured Depth: 37.1
Depth to Packer: NA
Pump Intake: ES-60

Purge Setting: Discharge: NA / Refill: NA
Sample Setting: Discharge: NA

Depth to Water: 23.1
Height of Water Column: 14 FT.
Volume of one casing: 2.28 GAL

Packer Pressure: NA
Purge Start Time: ~~13:00~~ 13:05
Discharge Rate: 5 gal/min
Purge End Time: 13:30

Purge calculations
14 ft. x .163 gals. / ft. x 10 = 22.8 gallons

Time	Gallons	Temp.	pH	EC	Water clarity
1:05	5	65.5	6.40	1.92 x1000	TURBID
1:10	10	66.3	6.41	2.01	SLIGHTLY TURBID
1:15	15	66.4	6.36	1.80	"
1:20	20	66.8	6.43	2.03	"
1:25	25	66.7	6.25	1.90	"
1:30	30	65.9	6.46	1.89	"

ANALYSES REQUIRED	SAMPLE TIME	CONTAINER TYPE	FILTRATION?

FIELD OBSERVATIONS (Well condition, repairs needed)

PID reading when well cap opened: NA
Dissolved Oxygen reading: NA
Turbidity Measurement: NA

Disposal method of purge water: DRUMMED ON SITE
Decontamination procedure:

Other notes:

Sampler Signature(s) :

[redacted]

Date: 2/27/04
Set up time: 8:30
Weather: cloudy
Samplers: JMP

WELL # MW-19C

HISTORIC CONCENTRATIONS :

Location:
Construction: 2 inch pvc/
Groundwater Zone:
Screened Interval: 70 - 80 ft. bgs

Construction Depth: 80 ft. bgs
Measured Depth: 80.0
Depth to Packer: NA
Pump Intake:

Purge Setting: Discharge: NA / Refill: NA
Sample Setting: Discharge: NA

Depth to Water: 18.14
Height of Water Column: 61.86
Volume of one casing: 10.1

Packer Pressure: NA
~~Purge~~ Start Time: 9:20 ~~10:30~~
Discharge Rate: NA
~~Purge~~ End Time: ~~13:00~~ 13:00

Purge calculations
61.86 ft. x .163 gals. / ft. x 10 =
100.8 gallons

Time	Gallons	Temp.	pH	EC	Water clarity
10:00	10	62.6	6.30	1.15 X1000	Turbid
11:20	~~15~~	65.5	6.76	1.92X1000	Turbid
11:30	20	63.7	6.50	1.16 X1000	"
11:40	30	63.7	8.08	1.11 X1000	"
11:50	40	65.3	8.30	1.17X1000	"
12:05	50	63.8	7.62	1.05 X1000	"
12:15	60	63.3	7.04	1.06X1000	"

ANALYSES REQUIRED		SAMPLE TIME		CONTAINER TYPE		FILTRATION?
12:25	70	63.1	6.78	1.09 X1000	"	
12:35	80	63.0	6.80	1.02 X1000	"	
12:45	90	63.2	6.50	1.05 X1000	"	

FIELD OBSERVATIONS (Well condition, repairs needed)

PID reading when well cap opened: NA
Dissolved Oxygen reading: NA
Turbidity Measurement: NA

Disposal method of purge water: DRUMMED ON SITE
Decontamination procedure:

Other notes: STOPPED PURGING FROM 10-11 DUE TO PH METER MALFUNCTION
NEW PH PICKED-UP FROM EQUIPCO

Sampler Signature(s) :

UNION PACIFIC RAILROAD COMPANY
HOOKSTON STATION
WELL DEVELOPMENT
FIELD NOTES / ERM WEST 8219.10

Date: 2/10/04
Set up time: 0910
Weather: clear
Samplers: RLS

WELL # MW-20A
HISTORIC CONCENTRATIONS :

Location: Vincent Rd.
Construction: 2 inch pvc/
Groundwater Zone:
Screened Interval: 10.0-20.0'

Construction Depth: 20'
Measured Depth: 20
Depth to Packer:
Pump Intake:

Purge Setting: Discharge: / Refill:
Sample Setting: Discharge:

Depth to Water: 12.93
Height of Water Column: 7.07
Volume of one casing: 1.15 gallons

Packer Pressure:
Purge Start Time: 0958
Discharge Rate: 0.66 g/min
Purge End Time: 1016

Purge calculations
7.07 ft. x .163 gals. / ft. x 10 = 11.5 gallons

Time	Gallons	Temp.	pH	EC ~S	Water clarity
1001	2	64.3	7.66	10	turbid, orer range
1004	4	63.6	7.70	10	11
1006	6	63.4	7.67	10	11
1008	8	62.7	7.62	10	225.0 clear
1009	10	62.8	7.78	10	clear
1011	12	63.0	7.78	10	67.8 clear
1013	14	63.8	7.83	10	clear
1016	16	64.1	7.78	10	clear

ANALYSES REQUIRED	SAMPLE TIME	CONTAINER TYPE	FILTRATION?
N/A			

FIELD OBSERVATIONS (Well condition, repairs needed)

PID reading when well cap opened:
Dissolved Oxygen reading:
Turbidity Measurement:

Disposal method of purge water: drums
Decontamination procedure: steam clean

Other notes:
bailed out 2.5 gallons, surge for 20 min.

Sampler Signature(s) :

Rachel Seggos

UNION PACIFIC RAILROAD COMPANY
HOOKSTON STATION
WELL DEVELOPMENT
FIELD NOTES / ERM WEST 8219.10

Date: 2/10/04
Set up time: 0910
Weather:
Samplers: RLS

WELL # MW-20B
HISTORIC CONCENTRATIONS :

Location: Vincent Rd.
Construction: 2 inch pvc/
Groundwater Zone:
Screened Interval: 30.5-40.5

Construction Depth: 40.5
Measured Depth: 37/40 after surge
Depth to Packer:
Pump Intake:

Purge Setting: Discharge: / Refill:
Sample Setting: Discharge:

Depth to Water: 12.95
Height of Water Column: 27.55'
Volume of one casing: 4.49 gallons

Packer Pressure:
Purge Start Time: 0927
Discharge Rate: .70 gl/min
Purge End Time: 1029

Purge calculations 10
27.55 ft. x .163 gals. / ft. x 3 =
44.9 gallons

Time	Gallons	Temp. °F	pH	EC µS	Water clarity (turbidity)
0935	5	53.4	7.63	11	turbid / over
0942	10	54.0	7.58	9	turbid / over
0949	15	54.6	7.79	8	turbid / over
0955	20	62.7	7.87	10	1040 NTU
1003	25	63.7	7.65	11	446.2
1010	30	62.8	7.73	10	241.9, clear
1017	35	61.4	7.72	10	clear
1023	40	65.3	7.72	9	161.8 clear
1029	45	64.7	7.60	10	62.68 clear

ANALYSES REQUIRED	SAMPLE TIME	CONTAINER TYPE	FILTRATION?
N/A			

FIELD OBSERVATIONS (Well condition, repairs needed)

PID reading when well cap opened:
Dissolved Oxygen reading:
Turbidity Measurement:

Disposal method of purge water: drums
Decontamination procedure: steam clean

Other notes:
bailed 5 gallons prior to purge

Sampler Signature(s) : Rachel Sieyes

UNION PACIFIC RAILROAD COMPANY
HOOKSTON STATION
WELL DEVELOPMENT
FIELD NOTES / ERM WEST 8219.10

Date: 2/10/04
Set up time: 1630
Weather:
Samplers: RCS

WELL # MW-21A

HISTORIC CONCENTRATIONS :

Location: Vincent Rd.
Construction: 2 inch pvc/
Groundwater Zone:
Screened Interval: 10.0-20.0

Construction Depth: 20.0
Measured Depth: 19.8
Depth to Packer:
Pump Intake:

Purge Setting: Discharge: / Refill:
Sample Setting: Discharge:

Depth to Water: 13.18
Height of Water Column: 6.82
Volume of one casing: 1.10

Packer Pressure:
Purge Start Time: 1720
Discharge Rate: 1.5 gl/min.
Purge End Time: 1738

Purge calculations
6.82 ft. x .163 gals. / ft. x 10 =
11 gallons

Time	Gallons	Temp.	pH	EC ~75	Water clarity
1722	5	60.5	7.6	4	turbid, over range
1724	8	61.3	7.69	5	"
1725	10	62.1	7.62	6	turbid, 1,111
1728	15	62.5	7.17	6	" 969.3
1732	20	63.0	7.17	7	cleaning 281.7
1734	23	64.1	7.17	6	clear 305.8
1738	30	63.1	7.17	5	" 108.6

ANALYSES REQUIRED	SAMPLE TIME	CONTAINER TYPE	FILTRATION?
N/A			

FIELD OBSERVATIONS (Well condition, repairs needed)

PID reading when well cap opened:
Dissolved Oxygen reading:
Turbidity Measurement:

Disposal method of purge water: drum
Decontamination procedure: steam clean

Other notes:
surge 15 min, bail ~2.5 gallons

Sampler Signature(s) :

Rachel Siggs

UNION PACIFIC RAILROAD COMPANY
HOOKSTON STATION
WELL DEVELOPMENT
FIELD NOTES / ERM WEST 8219.10

Date: 2/10/04
Set up time: 1630
Weather: clear
Samplers: RLS

WELL # MW-21B
HISTORIC CONCENTRATIONS :

Location: Vincent Rd.
Construction: 2 inch pvc/
Groundwater Zone:
Screened Interval: 30.0 - 40.0

Construction Depth: 40.0
Measured Depth: 39.6
Depth to Packer:
Pump Intake:

Purge Setting: Discharge: / Refill:
Sample Setting: Discharge:

Depth to Water: 14.19
Height of Water Column: 24.1
Volume of one casing: 3.9

Packer Pressure:
Purge Start Time: 1715
Discharge Rate: 0.7 l/min.
Purge End Time: 1801

Purge calculations
24.1 ft. x .163 gals. / ft. x 10 = 39 gallons

Time	Gallons	Temp.	pH	EC µS	Water clarity
1722	5	60.5	7.48	9	turbid, over range
1730	10	62.5	7.17	6	"
1739	15	62.7	7.14	6	clearing 815.3
1749	20	64.5	7.17	5	" 1,100
1755	25	65.7	7.17	5	clear 313.0
1801	30	64.3	7.17	6	clear 101.9

ANALYSES REQUIRED	SAMPLE TIME	CONTAINER TYPE	FILTRATION?
N/A			

FIELD OBSERVATIONS (Well condition, repairs needed)

PID reading when well cap opened:
Dissolved Oxygen reading:
Turbidity Measurement:

Disposal method of purge water: drum
Decontamination procedure: steam clean

Other notes:

surge 1635 - 1650, bailed ~4 gallons

Sampler Signature(s) :

Rachel Sipps

UNION PACIFIC RAILROAD COMPANY
HOOKSTON STATION
WELL DEVELOPMENT
FIELD NOTES / ERM WEST 8219.10

Date: 2/12/04
Set up time:
Weather: clear, sunny
Samplers: RLS

WELL # MW-22B
HISTORIC CONCENTRATIONS :

Location: Hookston
Construction: 2 inch pvc/
Groundwater Zone:
Screened Interval: 40.0-50.0

Construction Depth: 50.0
Measured Depth: 41.3/49.9 'after surge
Depth to Packer:
Pump Intake:

Purge Setting: Discharge: / Refill:
Sample Setting: Discharge:

Depth to Water: 17.20
Height of Water Column: 32.8
Volume of one casing: 5.34

Packer Pressure:
Purge Start Time: 1146
Discharge Rate: 1.25 g/min
Purge End Time: 1239

Purge calculations
32.8 ft. x .163 gals. / ft. x 10 = 53 gallons

Time	Gallons	Temp.	pH	EC mS	Water clarity
1151	5	61.1	7.57	5	turbid, over
1155	10	58.3	7.71	4	"
1159	15	57.1	7.78	3	"
1204	20	62.3	7.91	5	"
1208	25	64.4	7.69	4	"
1212	30	64.10	7.62	3	"
1217	35	65.0	7.72	4	"
1221	40	65.8	7.18	4	"
1226	45	64.6	7.19	4	"
1230	50	63.4	7.18	4	"
1235	55	64.7	7.18	3	"
1239	60	63.1	7.19	3	"

ANALYSES REQUIRED	SAMPLE TIME	CONTAINER TYPE	FILTRATION?
N/A			

FIELD OBSERVATIONS (Well condition, repairs needed)

PID reading when well cap opened:
Dissolved Oxygen reading:
Turbidity Measurement:

Disposal method of purge water: drum
Decontamination procedure: steam clean

Other notes:
surge 1120-1137, bailed out 8 gallons

Sampler Signature(s) :

Rachel Sykes

UNION PACIFIC RAILROAD COMPANY
HOOKSTON STATION
WELL DEVELOPMENT
FIELD NOTES / ERM-WEST 8219.10

Date: 6/4/04
Set up time: 1545
Weather: clear, sunny
Samplers: RLS

WELL # MW-23A

HISTORIC CONCENTRATIONS :

Location:	Construction Depth: 27'
Construction: 2 inch pvc/	Measured Depth:
Groundwater Zone:	Depth to Packer:
Screened Interval: 17'-27'	Pump Intake:

Purge Setting: Discharge: / Refill:	Depth to Water: 18.89'
Sample Setting: Discharge:	Height of Water Column: 8.11
	Volume of one casing: 1.32

Packer Pressure:	Purge calculations 10
Purge Start Time: 1552	8.11 ft. x .163 gals. / ft. x 3 =
Discharge Rate:	18.2 gallons
Purge End Time: 1624	

Time	Gallons	Temp.	pH	EC	Water clarity
1552	0				
1604	3	74.6	6.98	2.08	turbid
1605	6	75.3	7.20	2.16	"
1607	9	74.7	7.18	2.05	"
1610	12	74.6	7.20	2.06	"
1612	15	74.3	7.16	2.16	"
1614	20	73.7	7.15	2.09	"
1618	30	72.4	7.25	2.13	clearing
1620	40	71.5	7.18	2.16	"
1622	50	70.0	7.19	2.09	clear
1624	55	70.7	7.18	2.08	clear

ANALYSES REQUIRED	SAMPLE TIME	CONTAINER TYPE	FILTRATION?
VOCs - 8260	1630	VOAs	No

FIELD OBSERVATIONS (Well condition, repairs needed)

PID reading when well cap opened:	Disposal method of purge water: drums
Dissolved Oxygen reading:	Decontamination procedure:
Turbidity Measurement:	steam clean

Other notes:

Sampler Signature(s) :

Rachel Sypes

UNION PACIFIC RAILROAD COMPANY
HOOKSTON STATION
WELL DEVELOPMENT
FIELD NOTES / ERM WEST 821970

Date: 6/7/04
Set up time: 0840
Weather: clear, cool
Samplers: RLS

WELL # MW-23B
HISTORIC CONCENTRATIONS :

Location:
Construction: 2 inch pvc/
Groundwater Zone:
Screened Interval: 48'-58'

Construction Depth: 58'
Measured Depth:
Depth to Packer:
Pump Intake:

Purge Setting: Discharge: / Refill:
Sample Setting: Discharge:

Depth to Water: 18.66
Height of Water Column: 39.34
Volume of one casing: 6.4

Packer Pressure:
Purge Start Time: 0855
Discharge Rate:
Purge End Time: 1110

Purge calculations 10
39.34 ft. x .163 gals. / ft. x 3 =
64 gallons
added ~20g. x 3 = 60 g.

Time	Gallons	Temp.	pH	EC	Water clarity
0855	0				
0900	10	62.4	7.43	1.19	turbid
0910	15 RD	62.	7.71	1.21	"
0920	20	68.1	7.22	1.22	"
0927	25	66.2	7.27	1.22	"
0957	35	65.4	7.28	1.22	clearing
1009	45	62.9	7.21	2.27	m. turbid
1020	55	61.5	7.08	2.21	clearing
1040	65	64.1	7.09	1.97	clear
1049	75	67.1	7.09	2.05	"
1059	85	65.8	7.12	1.94	"
1110	95	65.3	7.13	1.92	"

ANALYSES REQUIRED	SAMPLE TIME	CONTAINER TYPE	FILTRATION?
VOCs - 8260		VOAs	NO

FIELD OBSERVATIONS (Well condition, repairs needed)

PID reading when well cap opened:
Dissolved Oxygen reading:
Turbidity Measurement:

Disposal method of purge water: drums
Decontamination procedure: steam clean

Other notes:

Sampler Signature(s) :

Rachel Seppa

UNION PACIFIC RAILROAD COMPANY
HOOKSTON STATION
WELL DEVELOPMENT
FIELD NOTES / ERM WEST 8219.10

Date: 6/8/04
Set up time: 0915
Weather: clear, sunny
Samplers: RLS

WELL # MW-23C

HISTORIC CONCENTRATIONS :

Location:
Construction: 2 inch pvc/
Groundwater Zone:
Screened Interval: 93'-103'

Construction Depth: 103'
Measured Depth:
Depth to Packer:
Pump Intake:

Purge Setting: Discharge: / Refill:
Sample Setting: Discharge:

Depth to Water: 17.70'
Height of Water Column: 85.3
Volume of one casing: 13.9

Packer Pressure:
Purge Start Time: 0930
Discharge Rate: 1 gallon/minute
Purge End Time: 1245

Purge calculations 10
85.3 ft. x .163 gals. / ft. x 3 =
139 gallons
+ 14.5 gallons added x 3 = 43.5 g

Time	Gallons	Temp.	pH	EC µS	Water clarity
0930	0				
0933	10	67.5	8.85	over	turbid
0936	20	62.5	8.68	4.76	"
0939	30	59.2	8.12	7.82	"
1003	40	58.4	8.05	10.15	"
1010	60	58.6	7.71	13.75	"
1025	75	60.2	7.56	2.56	clearing
1050	90	60.8	7.59	8.08	clear
1116	120	63.5	7.49	1.37	
1200	150	61.3	7.50	1.07	
1245	170	62.3	7.45	1.27	

ANALYSES REQUIRED	SAMPLE TIME	CONTAINER TYPE	FILTRATION?
8260-VOCs		VOAs	NO

FIELD OBSERVATIONS (Well condition, repairs needed)

PID reading when well cap opened:
Dissolved Oxygen reading:
Turbidity Measurement:

Disposal method of purge water: drums
Decontamination procedure: steam clean

Other notes:

Sampler Signature(s) :

Rachel Sipps

UNION PACIFIC RAILROAD COMPANY
HOOKSTON STATION
WELL DEVELOPMENT
FIELD NOTES / ERM WEST 8219.10

Date: 2/10/04
Set up time: 1410
Weather:
Samplers: RLS

WELL # MW-24A
HISTORIC CONCENTRATIONS :

Location: Bermuda & Stimul
Construction: 2 inch pvc/
Groundwater Zone:
Screened Interval: 20.5-30.5

Construction Depth: 30.5
Measured Depth: ~30
Depth to Packer:
Pump Intake:

Purge Setting: Discharge: / Refill:
Sample Setting: Discharge:

Depth to Water: 17.11
Height of Water Column: 12.89
Volume of one casing: 2.10

Packer Pressure:
Purge Start Time: 1508
Discharge Rate: 1.25 g/min.
Purge End Time: 1601

Purge calculations
12.89 ft. x .163 gals. / ft. x 10 = 21 gallons

Time	Gallons	Temp.	pH	EC MS	Water clarity
1510	4	76.3	7.44	10	turbid, over range
1513	8	73.1	7.39	7	"
1515	10	71.2	7.42	9	"
1519	15	65.0	7.36	6	"
1523	20	62.2	7.67	6	"
1527	25	61.2	7.68	6	"
1535	35	62.4	7.76	8	turbid, 1082
1538	40	64.0	7.69	8	" 1111
1541	45	64.6	7.60	8	" 1107
1550	55	64.5	7.60	10	clearing, 688.4
1557	65	64.5	7.67	8	clear, 277.9
1601	75	63.6	7.47	8	clear 182.6

ANALYSES REQUIRED	SAMPLE TIME	CONTAINER TYPE	FILTRATION?
N/A			

FIELD OBSERVATIONS (Well condition, repairs needed)

PID reading when well cap opened:
Dissolved Oxygen reading:
Turbidity Measurement:

Disposal method of purge water: drum
Decontamination procedure: steam clean

Other notes:
surge 1430-1450, bailed out ~ 2 gallons

Sampler Signature(s) :

Rachel Sejeps

UNION PACIFIC RAILROAD COMPANY
HOOKSTON STATION
WELL DEVELOPMENT
FIELD NOTES / ERM WEST 8219.10

Date: 2/10/04
Set up time: 1410
Weather:
Samplers: RLS

WELL # MW-24B
HISTORIC CONCENTRATIONS :

Location: Bermuda + Stimel
Construction: 2 inch pvc/
Groundwater Zone:
Screened Interval: 40.0 - 50.0

Construction Depth: 50
Measured Depth: 44 / 49.6 after surge
Depth to Packer:
Pump Intake:

Purge Setting: Discharge: / Refill:
Sample Setting: Discharge:

Depth to Water: 17.68
Height of Water Column: 26.32
Volume of one casing: 4.29

Packer Pressure:
Purge Start Time: 1512
Discharge Rate: 0.83 g/min
Purge End Time: [redacted] 1608

Purge calculations
26.32 ft. x .163 gals. / ft. x 10 = 43 gallons

Time	Gallons	Temp.	pH	EC µS	Water clarity
1515	5	69.6	7.45	6	turbid, over range
1521	10	62.7	7.51	7	"
1526	15	61.4	7.52	6	"
1532	20	61.2	7.76	7	turbid, 984.4
1536	25	63.7	7.74	8	" 808.9
1542	30	64.4	7.59	8	" 1111
1547	35	64.6	7.59	9	" 1118
1552	40	64.8	7.54	8	cleaning 403.6
1558	45	64.7	7.52	6	1026
1604	50	64.1	7.66	6	clear 326.4
1608	55	64.5	7.60	6	" 353.7

ANALYSES REQUIRED	SAMPLE TIME	CONTAINER TYPE	FILTRATION?
N/A			

FIELD OBSERVATIONS (Well condition, repairs needed)

PID reading when well cap opened:
Dissolved Oxygen reading:
Turbidity Measurement:

Disposal method of purge water: drum
Decontamination procedure: steam clean

Other notes:
surge from 1414 to 1435, bailed out 4 gallons

Sampler Signature(s) :

Rachel Sykes

UNION PACIFIC RAILROAD COMPANY
HOOKSTON STATION
WELL DEVELOPMENT
FIELD NOTES / ERM WEST 821940

Date: 6/9/04
Set up time: 0715
Weather: clear, cool
Samplers: RLS

WELL # MW-25A
HISTORIC CONCENTRATIONS :

Location:
Construction: 2 inch pvc/
Groundwater Zone:
Screened Interval: 18' - 28'

Construction Depth: 28'
Measured Depth:
Depth to Packer:
Pump Intake:

Purge Setting: Discharge: / Refill:
Sample Setting: Discharge:

Depth to Water: 22.90
Height of Water Column: 5.1
Volume of one casing: 0.83

Packer Pressure:
Purge Start Time: 0728
Discharge Rate:
Purge End Time: 0818

Purge calculations 10
5.1 ft. x .163 gals. / ft. x 3 =
8.3 gallons

Time	Gallons	Temp.	pH	EC	Water clarity
0728	0				
0730	2.5	51.8	7.64	4.16	turbid
0732	5	51.7	7.39	4.28	"
0737	10	51.3	7.54	4.01	"
0748	15	52.8	7.42	4.30	clearing
0803	20	64.1	7.45	4.65	"
0818	25	64.9	7.49	0.85	clear

ANALYSES REQUIRED	SAMPLE TIME	CONTAINER TYPE	FILTRATION?
VOCs - 8260	0830	VOAs	NO

FIELD OBSERVATIONS (Well condition, repairs needed)

PID reading when well cap opened:
Dissolved Oxygen reading:
Turbidity Measurement:

Disposal method of purge water: drums
Decontamination procedure: steam clean

Other notes:

Sampler Signature(s) :

Rachel Seppy

UNION PACIFIC RAILROAD COMPANY
HOOKSTON STATION
WELL DEVELOPMENT
FIELD NOTES / ERM WEST 8219.10

Date: 6/8/04 - 6/9/04
Set up time: 1330
Weather: clear, sunny
Samplers: RLS

WELL # MW-25B
HISTORIC CONCENTRATIONS :

Location:	Construction Depth: 58'
Construction: 2 inch pvc/	Measured Depth:
Groundwater Zone:	Depth to Packer:
Screened Interval: 48'-58'	Pump Intake:

Purge Setting: Discharge: / Refill:	Depth to Water:
Sample Setting: Discharge:	Height of Water Column: 36.9
	Volume of one casing: 21.10

Packer Pressure:
Purge Start Time: 1339
Discharge Rate:
Purge End Time: 0746 + 1 day

Purge calculations 10
36.9 ft. x .163 gals. / ft. x 10 =
60 gallons
+ 10 gallons added x 3 = 80g.

	Time	Gallons	Temp.	pH	EC	Water clarity
6/8/04	1339	0				
	1341	5	67.6	8.98	2.89	turbid
	1345	10	66.9	9.04	2.72	"
	1355	20	66.2	8.97	2.88	"
6/9/04	0722					
	0726	30	51.9	7.59	0.84	clearing
	0746	35	51.8	7.36	0.92	"

ANALYSES REQUIRED	SAMPLE TIME	CONTAINER TYPE	FILTRATION?
VOCs - 8260	0810	VOAs	NO

FIELD OBSERVATIONS (Well condition, repairs needed)

PID reading when well cap opened:	Disposal method of purge water: Drums
Dissolved Oxygen reading:	Decontamination procedure:
Turbidity Measurement:	Steam clean

Other notes: MW-25B pumped dry on 6/8/04, recovered fully on 6/9/04 and was pumped dry again. Sample was collected after recharge.

Sampler Signature(s): Rachel Sykes

UNION PACIFIC RAILROAD COMPANY
HOOKSTON STATION
WELL DEVELOPMENT
FIELD NOTES / ERM WEST / 8219.10

Date: 2/12/04
Set up time: 0830
Weather:
Samplers: RLS

WELL # MW-26B
HISTORIC CONCENTRATIONS :

Location: Del Rio Ct.
Construction: 2 inch pvc/
Groundwater Zone:
Screened Interval: 40.0-50.0

Construction Depth: 50.0
Measured Depth: 49.5
Depth to Packer:
Pump Intake:

Purge Setting: Discharge: / Refill:
Sample Setting: Discharge:

Depth to Water: 16.38
Height of Water Column: 33.62
Volume of one casing: 5.48

Packer Pressure:
Purge Start Time: 0918
Discharge Rate: ~1 gallon/min.
Purge End Time: 1027

Purge calculations
33.62 ft. x .163 gals. / ft. x 3 = 55 gallons

Time	Gallons	Temp.	pH	EC µS	Water clarity
0925	5	57.3	7.86	3	turbid, over range
0930	10	55.8	7.74	5	"
0935	15	57.2	7.75	3	"
0940	20	57.9	7.70	3	"
0945	25	63.5	7.77	4	"
0951	30	61.8	7.66	5	"
0956	35	59.6	7.79	3	"
1003	40	60.9	7.93	3	966.9
1008	45	62.9	7.87	4	949.4

ANALYSES REQUIRED	SAMPLE TIME	CONTAINER TYPE	FILTRATION?
N/A			

FIELD OBSERVATIONS (Well condition, repairs needed)

PID reading when well cap opened:
Dissolved Oxygen reading:
Turbidity Measurement:

Disposal method of purge water: drums
Decontamination procedure: steam clean

Other notes:
surge from 0835 to 0852, bailed out 8 gallons

Sampler Signature(s) :

Rachel Seppo

Appendix E
Geotechnical Soil Analyses

SEVERN TRENT STL

Geotechnical Analysis
Sample Data Summary Package

GEOTECHNICAL / GENERAL CHEMISTRY

Sample Report Summary

Client Sample No.

B-73-7.5-9

Lab Name: STL BURLINGTON | Contract: | SDG No.: 96361

Lab Code: STLVT | Case No.: 23000 | Lab Sample ID: 544697

Matrix: SOIL | Client: ERMWAL | Date Received: 10/03/03

% Solids:

Method	Parameter	Analytical Run Date	Analytical Batch	Units	DF	RL	Conc.	Qual.
D2937	In-Place Density	10/13/03		g/cm3	1	0.0	1.51	
D2974	Organic Soils	10/13/03		%	1	0.0	4.6	
D854	Specific Gravity	10/14/03	N/A		1.0	0.01	2.60	
POROSITY	Calculation (D2937+D854)	10/14/03		%	1	0.1	41.9	

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GEOTECHNICAL / GENERAL CHEMISTRY

Sample Report Summary

Client Sample No.

MW-13A-7

Lab Name: STL BURLINGTON | Contract: | SDG No.: 96361

Lab Code: STLVT | Case No.: 23000 | Lab Sample ID: 544698

Matrix: SOIL | Client: ERMWAL | Date Received: 10/03/03

% Solids:

Method	Parameter	Analytical Run Date	Analytical Batch	Units	DF	RL	Conc.	Qual.
D2937	In-Place Density	10/13/03		g/cm3	1	0.0	1.23	
D2974	Organic Soils	10/13/03		%	1	0.0	3.7	
D854	Specific Gravity	10/14/03	N/A		1.0	0.01	2.62	
POROSITY	Calculation (D2937+D854)	10/14/03		%	1	0.1	53.1	

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GEOTECHNICAL / GENERAL CHEMISTRY

Sample Report Summary

Client Sample No.

B-88-9.5

Lab Name: STL BURLINGTON | Contract: | SDG No.: 96361

Lab Code: STLVT | Case No.: 23000 | Lab Sample ID: 544699

Matrix: SOIL | Client: ERMWAL | Date Received: 10/03/03

% Solids:

Method	Parameter	Analytical Run Date	Analytical Batch	Units	DF	RL	Conc.	Qual.
D2937	In-Place Density	10/13/03		g/cm3	1	0.0	1.66	
D2974	Organic Soils	10/13/03		%	1	0.0	4.7	
D854	Specific Gravity	10/14/03	N/A		1.0	0.01	2.60	
POROSITY	Calculation (D2937+D854)	10/14/03		%	1	0.1	36.2	

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ASTM Method D2937: Standard Test Method for Density of Soil in Place by the Drive-Cylinder Method Calculations

Client Code: ERMWAL
ETR: 96361
SDG: 96361

Start Date: 10/13/2003
Start Time: 10:00
End Date: 10/14/2003
Analyst: MAP

Laboratory Number	Weight Of					Measurement of							
	Container (g)	Container + Sample (g)	Pan (g)	Pan + Wet Sample (g)	Pan + Dry Sample (g)	Sample Recovery (cm)	Container Diameter (cm)	Area (cm^2)	Wet Sample (g)	Dry Mass Basis (%)	Sample Volume (cm^3)	Dry Mass (g)	In-Place Density (g/cm^3)
544697	83.36	189.96	3.61	110.05	90.77	3.20	4.80	18.10	106.60	22.1%	57.91	87.29	1.51
544698	83.36	166.36	3.62	86.61	74.84	3.20	4.80	18.10	83.00	16.5%	57.91	71.23	1.23
544699	0.00	129.63	3.69	92.04	74.17	7.30	3.30	8.55	129.63	25.4%	62.44	103.41	1.66

ASTM Method D2974: Standard Test Methods for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils
Calculations

Client Code: ERMWAL
ETR: 96361
SDG: 96361

Start Date: 10/13/2003
Start Time: 20:30
End Date: 10/15/2003
Analyst: MAP

Laboratory Number	Weight of Pan (g)	Pan + Wet Sample (g)	Pan +Dry Sample (g)	Pan+ Ashed Sample (g)	Wet Sample (g)	Dry Sample (g)	Organic Matter (g)	Moisture Content (%)	Organic Matter (%)	Ash Content (%)
544697	3.61	110.05	90.77	86.80	106.44	87.16	3.97	22.1	4.6	95.4
544698	3.62	86.61	74.84	72.23	82.99	71.22	2.61	16.5	3.7	96.3
544699	3.69	92.04	74.17	70.84	88.35	70.48	3.33	25.4	4.7	95.3

ASTM Method D854: Standard Test Method for Specific Gravity of Soils
Calculations

Client Code:	ERMWAL	**Start Date:**	10/14/2003
ETR:	96361	**Start Time:**	08:34
SDG:	96361	**End Date:**	10/15/2003
		Analyst:	DJP

			Weight Of				Temperature of					
Laboratory Number	Flask Number	Flask Volume (ml)	Flask (g)	Flask + H_2O (g)	Flask + H_2O + Sample (g)	Flask + Dry Sample (g)	Flask + H_2O (°C)	Flask + H_2O + Sample (°C)	Oven Dried Sample Mass (g)	Density @ H_2O Temp	Density at Sample Temp.	Specific Gravity
544697	42	100	57.37	157.17	175.76	87.55	20.5	20.0	30.18	0.998	0.998	2.60
544698	43	100	57.14	156.89	175.47	87.19	20.5	20.0	30.05	0.998	0.998	2.62
544699	44	100	57.80	157.57	176.34	88.31	20.5	20.0	30.51	0.998	0.998	2.60

Porosity and Void Ratio Calculations

Client Code:	ERMWAL	**Start Date:**	10/14/2003
ETR:	96361	**Start Time:**	08:31
SDG:	96361	**Analyst:**	DJP

Laboratory Number	Specific Gravity	In-place Density	Porosity (%)	Void Ratio
544697	2.60	1.51	41.9	0.722
544698	2.62	1.23	53.1	1.130
544699	2.60	1.66	36.2	0.566

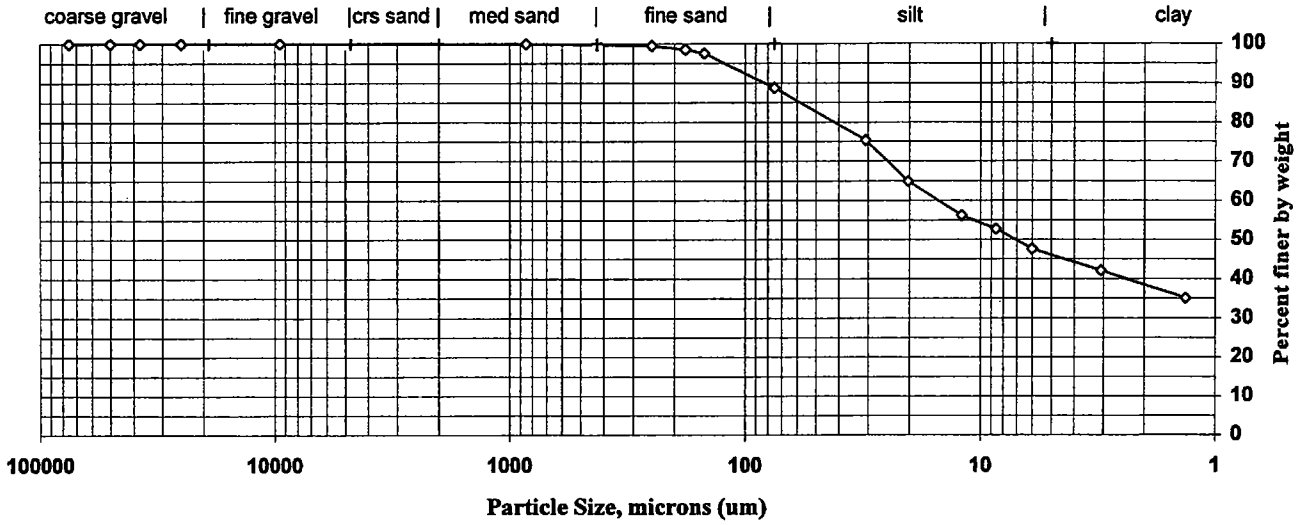
Particle Size of Soils by ASTM D422

Sample preparation method: **D2217**

Client:	ERMWAL	**Project No.:**	23000	**ETR(s) #:**	96361
Client Code:	ERMWAL	**Job No.:**	8219.1	**SDG(s):**	96361
Date Received:	3-Oct-03	**Start Date:**	13-Oct-03	**End Date:**	16-Oct-03

Lab ID: 544697 **Sample ID:** B-73-7.5-9

Percent Solids:	81.9%	**Maximum Particle Size:**	Med sand
Specific Gravity:	2.60	**Shape (> #10):**	N/A
Non-soil mass:	0.0%	**Hardness (> #10):**	N/A



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	100.0	0.0
#20	850	99.9	0.1
#40	425	99.7	0.2
#60	250	99.5	0.2
#80	180	98.5	0.9
#100	150	97.6	1.0
#200	75	88.8	8.8
Hydrometer	30.7	75.3	13.5
|	20.2	64.9	10.4
|	12.0	56.2	8.7
|	8.6	52.7	3.5
|	6.0	47.5	5.2
|	3.1	42.0	5.5
V	1.3	35.1	7.0

Soil Classification	Percent of Total Sample
Gravel	0.0
Sand	11.2
Coarse Sand	0.0
Medium Sand	0.3
Fine Sand	10.9
Silt	41.3
Clay	47.5

Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

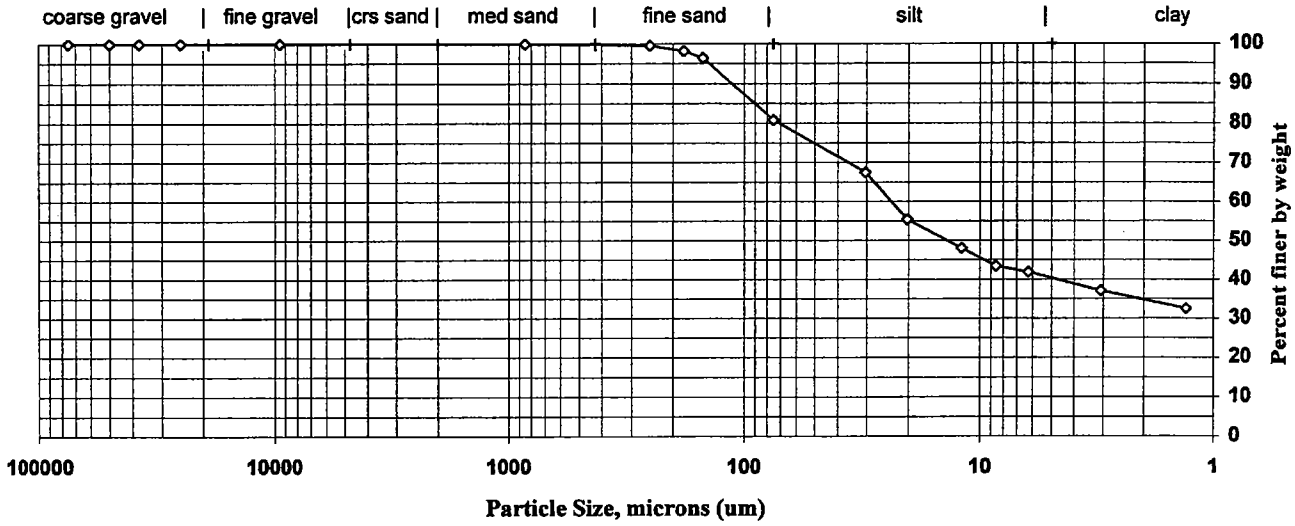
Particle Size of Soils by ASTM D422

Sample preparation method: **D2217**

Client:	ERMWAL	**Project No.:**	23000	**ETR(s) #:**	96361
Client Code:	ERMWAL	**Job No.:**	8219.1	**SDG(s):**	96361
Date Received:	3-Oct-03	**Start Date:**	13-Oct-03	**End Date:**	16-Oct-03

Lab ID: 544698 **Sample ID:** MW-13A-7

Percent Solids:	85.8%	**Maximum Particle Size:**	Crs sand
Specific Gravity:	2.62	**Shape (> #10):**	subrounded
Non-soil mass:	NA	**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	100.0	0.0
#20	850	99.9	0.0
#40	425	99.8	0.2
#60	250	99.5	0.2
#80	180	98.2	1.4
#100	150	96.4	1.8
#200	75	80.8	15.6
Hydrometer	30.4	67.5	13.3
|	20.2	55.3	12.2
|	11.9	48.0	7.4
|	8.6	43.4	4.6
|	6.3	41.9	1.5
|	3.1	37.1	4.8
V	1.3	32.5	4.6

Soil Classification	Percent of Total Sample
Gravel	0.0
Sand	19.2
Coarse Sand	0.0
Medium Sand	0.2
Fine Sand	19.0
Silt	38.9
Clay	41.9

Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

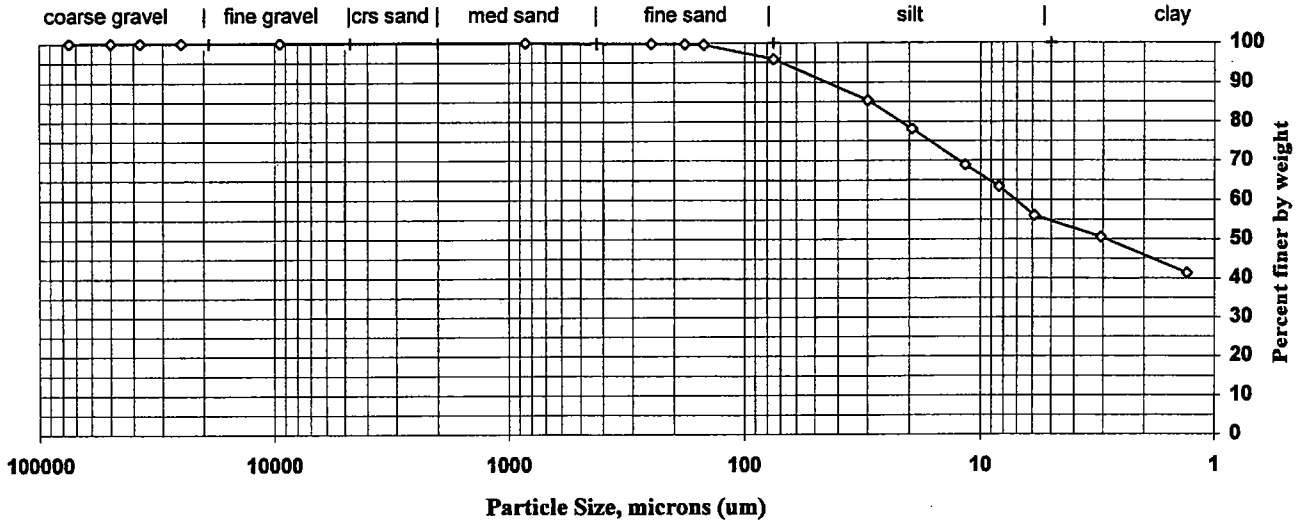
Particle Size of Soils by ASTM D422

Sample preparation method: D2217

Client:	ERMWAL	**Project No.:**	23000	**ETR(s) #:**	96361
Client Code:	ERMWAL	**Job No.:**	8219.1	**SDG(s):**	96361
Date Received:	3-Oct-03	**Start Date:**	13-Oct-03	**End Date:**	16-Oct-03

Lab ID: 544699 **Sample ID:** B-88-9.5

Percent Solids:	79.8%	**Maximum Particle Size:**	Med sand
Specific Gravity:	2.60	**Shape (> #10):**	N/A
Non-soil mass:	0.0%	**Hardness (> #10):**	N/A



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	100.0	0.0
#20	850	100.0	0.0
#40	425	99.8	0.2
#60	250	99.8	0.0
#80	180	99.7	0.1
#100	150	99.5	0.2
#200	75	95.8	3.7
Hydrometer	29.9	85.4	10.4
|	19.4	78.1	7.3
|	11.6	68.9	9.2
|	8.3	63.4	5.5
|	5.9	56.0	7.3
|	3.1	50.5	5.5
V	1.3	41.3	9.2

Soil Classification	Percent of Total Sample
Gravel	0.0
Sand	4.2
Coarse Sand	0.0
Medium Sand	0.2
Fine Sand	4.0
Silt	39.8
Clay	56.0

Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Entech Analytical Labs, Inc.

FILE 8219.10 HOOKSETT
RI LAB DATA - GEOTECHNICAL

3334 Victor Court • Santa Clara, CA 95054 • (408) 588-0200 • Fax (408) 588-0201

February 27, 2004

Brian Bjorklund
Environmental Resources Management
1777 Botelho Drive, Suite 260
Walnut Creek, CA 94596

Order:	37765	**Date Collected:**	2/4/2004
Project Name:	4186 Park Road	**Date Received:**	2/10/2004
Project Number:	8219.10	**P.O. Number:**	8219.10
Project Notes:			

On February 10, 2004, samples were received under documentented chain of custody. Results for the following analyses are attached:

Matrix	Test	Method
Solid	Grain Size Distribution-Cooper	ASTM D422
	TOC-Cooper	ASTM D-2974

Chemical analysis of these samples has been completed. Summaries of the data are contained on the following pages. USEPA protocols for sample storage and preservation were followed.

Entech Analytical Labs, Inc. is certified by the State of California (#2346). If you have any questions regarding procedures or results, please call me at 408-588-0200.

Sincerely,

C R Thom for

Patti Sandrock
QA/QC Manager

COOPER TESTING LABORATORY

Organic Content Test
ASTM D 2974-00 (Method C - 440 °C)

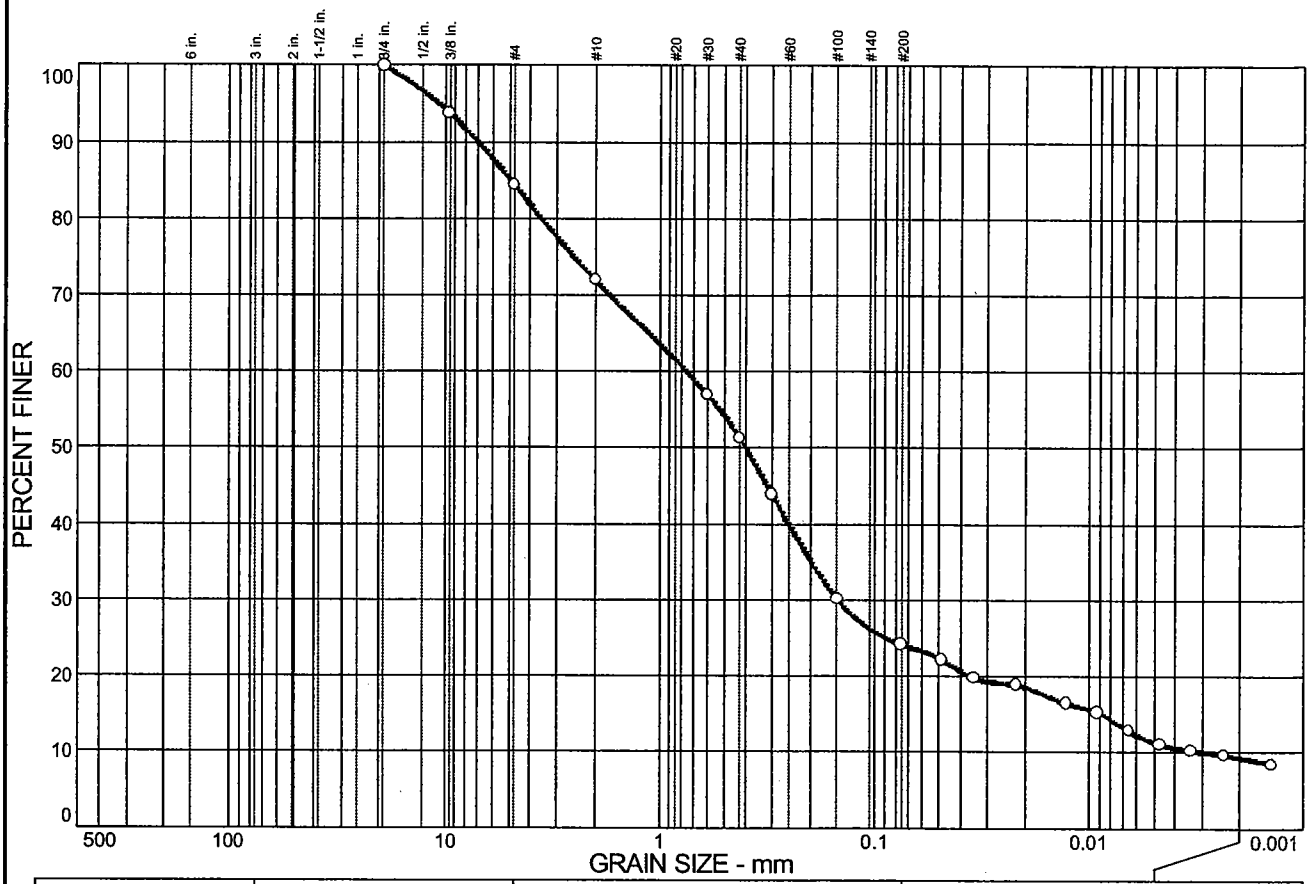
CTL JOB NO. 263-038 **PROJECT:** **DATE:** 2/26/2004

CLIENT : Entech Analytical Labs **PROJECT NO.:** 37765 **BY:** MJ

Entech Sample No.:	37765-001	37765-002	37765-003					
Customer Sample ID:	MW-16A-16.5'	MW-15A-15.5'	MW-15B-50'					
Visual Description:	Brown Sandy CLAY	Brown Clayey SAND with Gravel	Olive Brown CLAY with Sand					
Dish No.	OR15	OR20	OR5					
Dish wt., gm	75.42	82.23	80.21					
Soil, Org, Dish & H_2O, gm	152.07	147.81	140.87					
Oven Dry wt (105°C), gm	137.59	140.76	127.12					
Furnace Dry wt. (440°C), gm	136.63	140.12	126.33					
Moisture Content, % of Oven Dry Mass	23.3	12.0	29.3					
Organic Content, %	1.5	1.1	1.7					

Remarks:

PARTICLE SIZE DISTRIBUTION TEST REPORT



% + 3"	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	15.6	12.4	20.7	27.1	14.9	9.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4 in.	100.0		
3/8 in.	93.8		
#4	84.4		
#10	72.0		
#30	57.0		
#40	51.3		
#50	43.9		
#100	30.2		
#200	24.2		
0.0485 mm.	22.2		
0.0348 mm.	19.8		
0.0221 mm.	18.9		
0.0129 mm.	16.5		
0.0092 mm.	15.3		
0.0066 mm.	12.9		
0.0047 mm.	11.1		
0.0034 mm.	10.3		
0.0024 mm.	9.7		
0.0014 mm.	8.5		

* (no specification provided)

Soil Description

Brown Clayey SAND with Gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 4.95 D_{60}= 0.746 D_{50}= 0.398
D_{30}= 0.148 D_{15}= 0.0087 D_{10}= 0.0028
C_u= 265.55 C_c= 10.45

Classification

USCS= AASHTO=

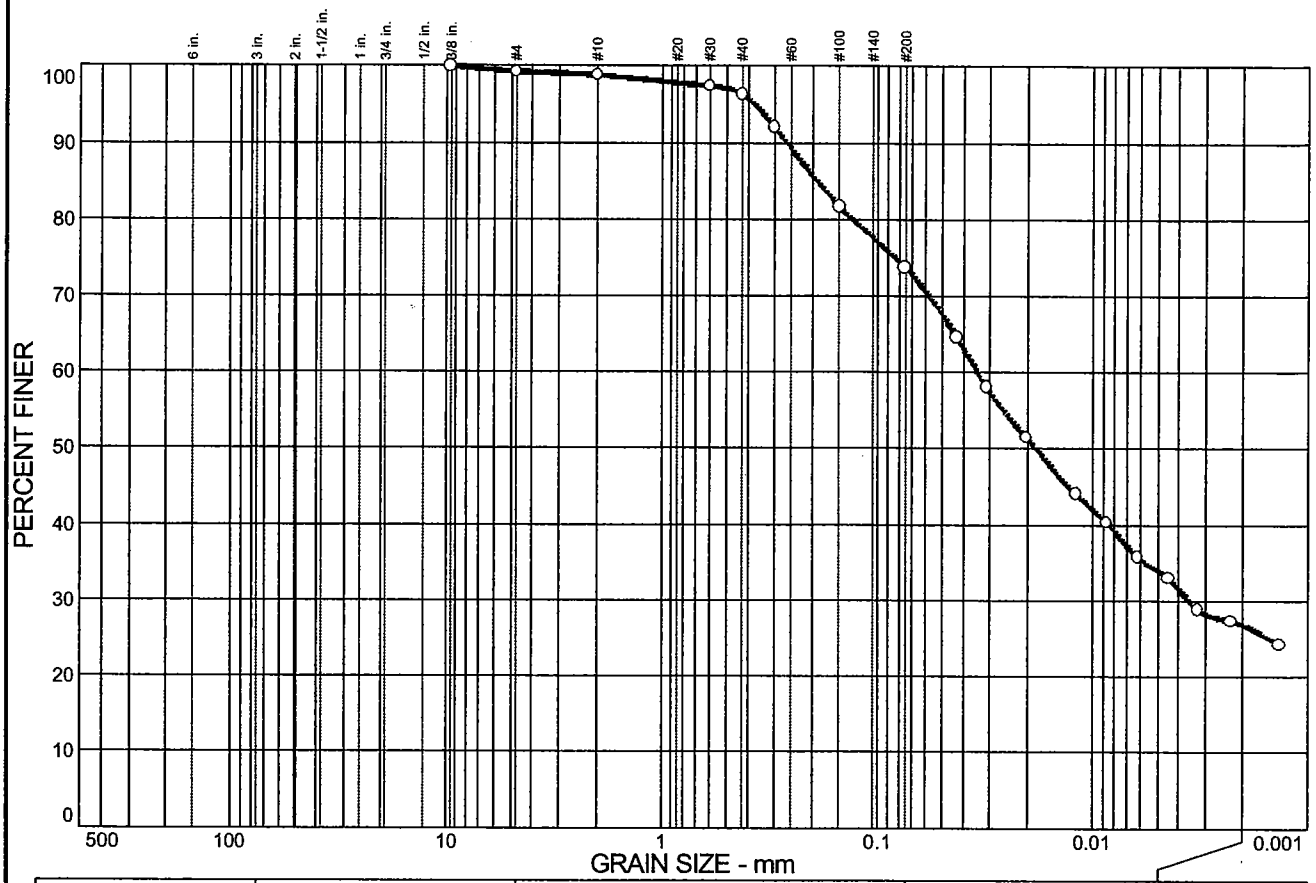
Remarks

Sample No.: MW-15A **Source of Sample:** Entech Sample No. 37765-002 **Date:**
Location: **Elev./Depth:** 15.5'

COOPER TESTING LABORATORY

Client: Entech Analytical Labs
Project: 37765
Project No: 236-038 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% + 3"	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.7	0.5	2.5	22.5	46.9	26.9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8 in.	100.0		
#4	99.3		
#10	98.8		
#30	97.4		
#40	96.3		
#50	92.0		
#100	81.7		
#200	73.8		
0.0430 mm.	64.6		
0.0313 mm.	58.1		
0.0203 mm.	51.5		
0.0121 mm.	44.1		
0.0087 mm.	40.4		
0.0062 mm.	35.8		
0.0045 mm.	33.0		
0.0032 mm.	28.9		
0.0023 mm.	27.4		
0.0014 mm.	24.3		

* (no specification provided)

Soil Description

Olive Brown CLAY with sand

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.190 D_{60}= 0.0345 D_{50}= 0.0184
D_{30}= 0.0036 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

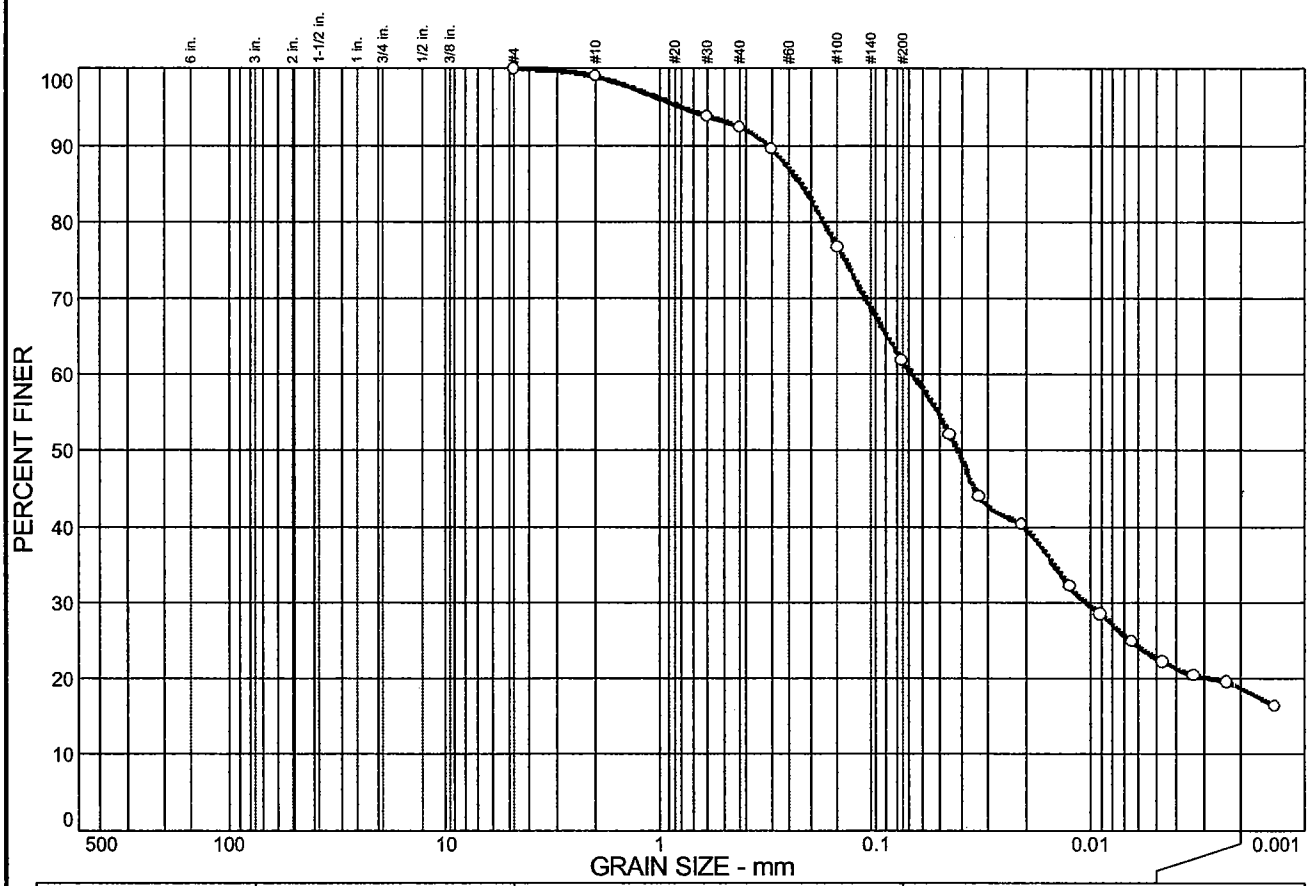
Remarks

Sample No.: MW-15B **Source of Sample:** Entech Sample No. 37765-003 **Date:**
Location: **Elev./Depth:** 50'

COOPER TESTING LABORATORY

Client: Entech Analytical Labs
Project: 37765
Project No: 236-038 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% + 3"	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	1.0	6.6	30.5	43.1	18.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.0		
#30	93.8		
#40	92.4		
#50	89.5		
#100	76.7		
#200	61.9		
0.0451 mm.	52.1		
0.0330 mm.	44.0		
0.0212 mm.	40.3		
0.0126 mm.	32.2		
0.0090 mm.	28.5		
0.0065 mm.	24.9		
0.0046 mm.	22.2		
0.0033 mm.	20.5		
0.0023 mm.	19.5		
0.0014 mm.	16.4		

* (no specification provided)

Soil Description

Brown Sandy CLAY

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.224 D_{60}= 0.0673 D_{50}= 0.0418
D_{30}= 0.0105 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Sample No.: MW-16A **Source of Sample:** Entech Sample No. 37765-001 **Date:**
Location: **Elev./Depth:** 16.5'

COOPER TESTING LABORATORY

Client: Entech Analytical Labs
Project: 37765
Project No: 236-038 **Figure**

Entech Analytical Labs, Inc.

CA ELAP # I-2346

3334 Victor Court, Santa Clara, CA 95054 (408) 588-0200 FAX (408) 588-0201

Subcontract Chain of Custody

Subcontract Lab:	Entech Project Name:	Date Sent:	Due Date:	PO Number:
Cooper	37765	2/10/04	2/20/04	37765

Entech Sample Number	Customer Sample Name Field Point ID	Matrix	Test	Method	Collect Date	Collect Time	Bottle Type	Preservative
37765-001	MW-16A-16.5'	Solid	Grain Size Distribution-Cooper	ASTM D422	2/4/2004	9:30		
37765-001	MW-16A-16.5'	Solid	TOC-Cooper	ASTM D-2974	2/4/2004	9:30		
37765-002	MW-15A-15.5'	Solid	Grain Size Distribution-Cooper	ASTM D422	2/5/2004	9:45		
37765-002	MW-15A-15.5'	Solid	TOC-Cooper	ASTM D-2974	2/5/2004	9:45		
37765-003	MW-15B-50'	Solid	Grain Size Distribution-Cooper	ASTM D422	2/5/2004	10:50		
37765-003	MW-15B-50'	Solid	TOC-Cooper	ASTM D-2974	2/5/2004	10:50		

Relinquished By: Joseph Machado	Received By:	Date: 02-10-04	Time: 1457
Relinquished By:	Received By:	Date: 2/10/04	Time: 15:15
Relinquished By:	Received By:	Date:	Time:

Notes: PLease Analyze also for Vertical Hydraulic Conductivity

Environmental Resources Management

CHAIN OF CUSTODY RECORD

NO: 3897

1777 Botelho Drive, Suite 260 ● Walnut Creek, CA 94596 ● (925) 946-0455 ● FAX (925) 946-9968

Page 1 of 1

PROJECT #	PROJECT NAME
8219.10	HOOKSTON STATION

SAMPLER (PRINT NAME)	(SIGNATURE)
DAVID S. BETTS	

RECEIVING LABORATORY: Entech

SAMPLE I.D.	DATE	TIME	COMP	GRAB	SAMPLING METHOD	PRESERVATION	ICE (Y/N)	SAMPLING VOLUME	# OF CONTAINERS	MATRIX: SOIL	MATRIX: WATER	MATRIX: GAS	REQUESTED PARAMETERS: TOTAL ORGANIC CARBON	REQUESTED PARAMETERS: GRAIN SIZE DISTRIBUTION	REQUESTED PARAMETERS: VERTICAL HYDRAULIC CONDUCTIVITY							
MW-16A-16.5'	2/4/04	0930		X	SPLIT SPOON		Y	802.	2	X			X	X	X					37765-001		
MW-15A-15.5'	2/5/04	0935		X	↓		↓	802.	2	X			X	X	X							002
MW-15B-50'	2/5/04	1050		X	↓		↓	802.	2	X			X	X	X							003

RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY	DATE	TIME
Doug Mohrig	2/6/04	1650		2/6/04	945
	2/10/04	1102		2/10/04	1120

FIELD REMARKS:

REMARKS ON SAMPLE RECEIPT

- ☐ BOTTLE INTACT
- ☐ CUSTODY SEALS
- ☐ CHILLED
- ☐ PRESERVED
- ☐ SEALS INTACT
- ☐ SEE REMARKS

ERM REMARKS:

SEND REPORT TO: Brian Bjorklund

WHITE - LABORATORY COPY CANARY - FIELD COPY PINK - DATABASE MANAGER GOLD - PROJECT FILE

Appendix F
Quality Assurance/Quality Control Summary

Analytical data are the basis for evaluating the environmental conditions at the Hookston Station site in Pleasant Hill, California. It is essential that the data are accurate and reflect actual conditions.

To ensure data quality was acceptable for decision-making purposes, ERM reviewed laboratory analytical results for sampling events conducted by ERM between September 2001 and June 2004. Analytical data collected by other consultants prior to September 2001 were not reviewed by ERM for quality assurance/quality control. The purpose of this review is to identify limitations on the use of the data and identify data that should not be used for decision-making purposes. The quality of the data was assessed and qualifiers were applied following the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (USEPA, October 1999) and *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (USEPA, July 2002).

ERM reviewed data for compliance with the following quality assurance/quality control (QA/QC) and method-prescribed criteria for level II review:

- **Holding Time and Sample Preservation:** The period of time between collection of the sample and preparation/analysis of the sample is evaluated. Analyses performed for this project have method-prescribed holding times as well as temperature and chemical preservation requirements.
- **Blank Samples:** The preparation and analysis of reagent (contaminant-free) water is evaluated. Blank samples for this investigation included method, trip, rinsate, and field blanks. Detections in a blank sample may indicate laboratory, transportation, or field contamination. All samples are evaluated for common laboratory contaminants during the blank evaluation.
- **Spike Samples:** The preparation and analysis of an environmental sample or a sample of reagent water spiked with a subset of target compounds at known concentrations is evaluated. The results of the spike analysis measure laboratory accuracy in the reagent sample, and results from the environmental sample spike measure potential interference from the matrix.
- **Surrogate Spikes:** The addition of compounds similar to target compounds of interest that are added to sample aliquots for organic analysis is evaluated. Surrogate spikes measure possible interference from the sample matrix for the analysis of target compounds.

- **Duplicate Samples:** The preparation and analysis of a duplicate aliquot of the sample is evaluated. The results from duplicate analysis measure potential heterogeneity of contaminants in the sample.

Potential USEPA qualifiers that may have been applied during the review process are as follows:

U (Nondetected): The analyte was reported as detected by the laboratory, but the reported concentrations should be considered nondetected above the laboratory reporting limit.

J (Estimated): The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample.

N (Tentative identification): The analysis indicated the presence of an analyte for which there was presumptive evidence to make only a "tentative identification."

NJ (Estimated tentative identification): The analysis indicated the presence of an analyte that had been "tentatively identified" and the associated numerical value represents its approximate concentration.

UJ (Estimated, nondetected): The analyte was not detected above the reported sample quantitation limit; however, the reported quantitation limit was approximate and may or may not have represented the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R (Rejected): The sample results were rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte could not be verified.

Two sample results were rejected due to severe holding time exceedances. All remaining data, including data qualified as estimated, are acceptable and can be used for decision-making purposes. The following discussion addresses each of the QA/QC components listed above and the validation results for each of the components.

HOLDING TIME AND PRESERVATION

The USEPA has established a maximum sample holding time for each analysis. The USEPA has also established chemical and temperature preservation requirements for those analyses that may be subject to chemical degradation. Holding times and sample temperatures extending beyond the USEPA maximum or samples that are not properly preserved

can negatively affect sample integrity (e.g., loss of volatile compounds, biodegradation) and are qualified depending on the severity of the exceedence and compounds of concern.

ERM has reviewed the analytical results for compliance with the method-prescribed preparation and analysis holding times as well as preservation requirements. The sample shipments were received in the laboratory at the appropriate temperature with limited exceptions. The affected samples were qualified as estimated (J/UJ) for volatile organic compounds (VOC) as shown in Table F-1.

The VOC holding time is 14 days. Two samples required reanalysis for VOCs and were reanalyzed one day out of the holding time. The affected reanalyzed samples were qualified as estimated (J/UJ) as shown in Table F-2. In addition, two other samples analyzed for VOCs were qualified as estimated (J/UJ) because the analysis holding time was exceeded by five days.

The nitrate holding time is 48 hours. Several samples were analyzed from one to three days out of holding time. According to the *Functional Guidelines*, if the sample is analyzed later than two times the holding time, nondetected sample results are considered rejected (R). As a result, two samples were rejected for the nitrate analysis. Detected sample results with exceeded holding times were qualified as estimated (J). These results can be found in Table F-2.

BLANK SAMPLES

A blank sample consists of contaminant-free reagent water and is prepared and analyzed in the same manner as the samples. The purpose of a blank sample is to determine the presence and magnitude of possible contamination resulting from laboratory, shipping, or other sample-handling activities. If target compounds are detected in a blank sample, then all associated data must be evaluated to determine whether those results have been similarly impacted, or the blank problem is an isolated occurrence not representative of other data.

The three types of blank samples analyzed and reported with the Hookston Station samples were method, trip, and field blank samples. Preparation, handling, and analysis of these blank samples are as follows:

- Method blank samples were prepared by the laboratory by taking an aliquot of reagent water through all preparation and analysis steps. A method blank was prepared and analyzed with each batch of

environmental samples. Method blank samples monitor for potential contamination of samples from the laboratory procedures.

- Trip blank samples were prepared by the laboratory by filling a sample vial with an aliquot of reagent water and sealing it with a Teflon-lined lid. Trip blank samples monitor for potential contamination of samples during collection and transportation to the laboratory. The trip blank samples travel with the empty sample containers to the field and return to the laboratory with the samples. Trip blank samples are opened by laboratory personnel only.
- Field blank samples were prepared in the field at specific sample collection locations by slowly pouring reagent water into sample bottles at the sample collection site. Field blank samples monitor for potential contamination of project samples from ambient conditions at the sample collection site.

Common Laboratory Contamination

As part of the blank sample review, all samples are evaluated for common laboratory contamination. The USEPA has designated certain compounds common laboratory contaminants because of their abundant use in the laboratory. Acetone, 2-butanone, cyclohexane, and methylene chloride are the common laboratory contaminants designated for the VOC analysis. Phthalate compounds are considered common laboratory contamination in the semivolatile organic compounds analysis.

Detections of these compounds are considered common laboratory contamination when found at concentrations less than ten times (10x) the report limit. When detected greater than the report limit, but less than 10x the report limit, the report limit is elevated to the concentration found in the sample, and the compound is qualified as nondetected (U) at that concentration. When detected below the report limit, the samples are qualified as nondetected at the report limit.

Evaluation for common laboratory contamination was performed in all samples and blanks before assessment for other contaminants. If these common laboratory contaminants are found at low levels in the blanks, they are considered nondetected and thus are not used to qualify other samples. If found in the samples, they are qualified as nondetected (U) in the manner described above.

Acetone, 2-butanone, cyclohexane, methylene chloride, butylbenzylphthalate, and bis(2-ethylhexyl)phthalate were found at low levels in several samples and blanks. These compounds were qualified as nondetected (U) according to the 10x rule as shown on Table F-3.

Method Blanks

Method blanks were prepared and analyzed with every batch of samples. All method blanks were evaluated for the presence of contamination. A small number of the method blanks had low level detections of target analytes. Sample data were qualified according to the *Functional Guidelines'* 5x rule as follows: sample results that were detected at concentrations less than five times the concentration detected in the associated blank were qualified as nondetected (U). The blanks and associated qualified data can be found in Table F-3.

Trip Blank Samples

Trip blanks are typically analyzed only for volatile organic compounds and may occasionally be contaminated during transportation, preparation, or analysis of the samples. The trip blank sample results were nondetected with limited exceptions. Associated samples that had detections of these compounds were qualified as nondetected (U) according to the appropriate 5x and 10x rule.

Trip blank and associated sample results with applied qualifiers are listed in Table F-3. The trip blank data indicate sample handling and transportation procedures were acceptable.

Field Blank Samples

Field blank samples were submitted during the project. A small number of target analytes were detected in the field blank samples as shown in Table F-3. Associated data were qualified as nondetected (U) according to the appropriate 5x and 10x rule.

The field blank and associated qualified sample results are listed in Table F-3. The data indicate that field conditions did not significantly compromise the integrity of the project samples.

SPIKE SAMPLES

A spike sample is a QC sample that is prepared and analyzed by the laboratory in the same manner as the samples. The laboratory prepares, analyzes, and reports spike samples to demonstrate proper analysis, detection, and quantification of target compounds. The accuracy of spike samples is assessed by percent recovery (%R), which is calculated as the amount of the detected compound divided by the amount spiked into the sample. The %R is then compared to an established limit range. The two

types of spike samples analyzed with the project samples were matrix spikes (MS) and blank spikes.

MS samples consist of an aliquot of an environmental sample that is spiked with known concentrations of target compounds. A matrix spike duplicate (MSD) sample is a duplicate MS sample prepared and analyzed with the original MS sample. The relative standard deviation (RSD) is calculated between the MS and the MSD. MS samples are used to monitor potential interference from the sample matrix for target compounds. A low MS recovery may indicate low-biased sample results; a high MS recovery may indicate high-biased sample results.

Blank spike samples, which are commonly referred to as laboratory control samples (LCS), consist of an aliquot of contaminant-free reagent water that is spiked with known concentrations of target compounds. The LCS sample monitors laboratory accuracy without the bias of a sample matrix. LCS recoveries outside of acceptable limits may indicate poor laboratory accuracy.

Most MS/MSD and LCS recoveries were within acceptable limits. Exceptions are listed in Table F-4. Other than the exceptions noted, the MS recoveries indicate minimal matrix interference and the LCS recoveries indicate acceptable laboratory accuracy. Associated sample results were qualified based on spike results as follows:

- Detected sample results associated with a MS/MSD %R outside of the control limits were qualified as estimated (J).
- Nondetected sample results associated with an MS/MSD %R above the upper control limit did not require qualification because a high bias would not affect a nondetected result.
- MS/MSD recoveries below the lower control limit indicate the potential for false negative results. Nondetected sample results associated with MS/MSD %Rs below the lower control limit were qualified as estimated (UJ) at the report limit, and detected results were qualified as estimated (J).
- Data are not qualified if only one MS or MSD in the MS/MSD pair did not meet control limits.
- Data are not qualified if the MS/MSD %Rs are within control limits but the RSD is not.
- Data are not qualified if the MS/MSD was performed on a non-client sample because the sample matrix may not be indicative of the Hookston Station sample matrix.

- Data are not qualified if a LCS did not meet control limits when verified by an in-control MS/MSD in the analytical batch.

All spike samples that did not meet control limits, along with associated qualified data, are shown in Table F-4.

SURROGATE SPIKES

A surrogate spike is used to assess interference from the sample matrix during the analysis. Surrogate spike results are assessed by %R, based on the concentration of surrogate in the sample divided by the known amount of surrogate added to the sample aliquot.

The surrogate recoveries were compared to the laboratory-generated limits of acceptance. Sample results with surrogate recoveries outside acceptable criteria were qualified (similar to data associated with MS/MSD recovery exceedances) as follows:

- Detected samples with a surrogate %R outside of the control limits were qualified as estimated (J).
- Nondetected sample results associated with a surrogate %R above the upper control limit did not require qualification because a high bias would not affect a nondetected result.
- Surrogate recoveries below the lower control limit indicate the potential for false negative results. Nondetected sample results associated with surrogate %Rs below the lower control limit were qualified as estimated (UJ) at the report limit, and detected results were qualified as estimated (J).
- If a surrogate recovery was out of control due to a large sample dilution, the data were not qualified.

Sample data affected by poor surrogate recoveries can be found in Table F-5.

DUPLICATE SAMPLES

A duplicate sample is a second aliquot of a sample that is collected, prepared, and analyzed in the same manner as the original sample. A duplicate sample analysis is performed to measure the precision of the method and to assess possible matrix heterogeneity.

ERM calculated the RPD between detected values in the field duplicate pairs. RPDs were not calculated when one sample result was detected

and the other was nondetected. The field duplicate results were generally within the recommended advisory limit of 25 percent; however, according to the *Functional Guidelines*, data are not qualified on the basis of field duplicate imprecision.

RPDs calculated using values less than five time the report limit do not accurately represent precision and are not used to assess precision. The RPDs indicate matrix homogeneity in the samples collected for this sampling event. Field duplicate sample results and their calculated RPDs can be found in Table F-6.

COMPOUND QUANTITATION

A small number of sample results were affected by various analytical problems during the project. The specific issues are described below:

- Three samples had compound concentrations that exceeded the calibration limit; these samples were successfully reanalyzed at a dilution, and the reanalyzed results should be used for decision-making purposes.

- Seven samples that had compound concentrations above the calibration limit were not reanalyzed. The original sample results are qualified as estimated (J).

- One sample batch had a calibration control limit that was exceeded for bromomethane; the affected samples were not reanalyzed. The samples were qualified as estimated (J/UJ) for bromomethane.

- The laboratory noted that the concentration of tetrachloroethene was elevated from possible carryover. This sample result was qualified as estimated (J).

All affected sample results and their associated qualifiers can be found in Table F-7.

TOTAL PETROLEUM HYDROCARBONS EVALUATION

To properly identify a specific multi-component total petroleum hydrocarbon (TPH) fraction in a sample, the chromatogram produced from the gas chromatograph analysis is compared to the multi-component chromatogram of the appropriate standards. The sample chromatogram

should contain a distinguishable pattern of peaks that is similar to the pattern present in the standard chromatogram.

The relative retention times and relative peak heights observed in the multi-component TPH standard were compared to sample chromatograms with positive detections. The laboratory noted that several samples had chromatograms that did not resemble the standard chromatogram for gasoline or diesel. ERM qualified these sample results as tentatively identified and estimated (NJ). These samples can be found in Table F-8.

OVERALL ASSESSMENT

Two samples were rejected for grossly exceeded holding times in the nitrate analysis. All remaining data, including qualified data, can be used for decision-making purposes; however, the limitation identified by the applied qualifier should be considered when using the data. The quality of the data generated during the Hookston Station sampling events is acceptable for the preparation of technically defensible documents.

Table F-1
Samples with Exceeded Preservation Requirements
Various Investigations
Hookston Station
Pleasant Hill, California

Lab Package	Sample ID	Analysis Method	Temperature of Samples (°C)	Limits (°C)	ERM Qualifier
October 2001 CPT Investigation					
155115	Trip Blank	VOC	6.8	2 - 6	J/UJ
155115	CPT-6-18	VOC	6.8	2 - 6	J/UJ
155115	CPT-6-53	VOC	6.8	2 - 6	J/UJ
155115	CPT-6-65	VOC	6.8	2 - 6	J/UJ
155115	CPT-6-85	VOC	6.8	2 - 6	J/UJ
155115	CPT-5-37	VOC	6.8	2 - 6	J/UJ
155115	CPT-5-44	VOC	6.8	2 - 6	J/UJ
155115	CPT-5-63	VOC	6.8	2 - 6	J/UJ
155115	CPT-5-97	VOC	6.8	2 - 6	J/UJ
155115	CPT-7-53	VOC	6.8	2 - 6	J/UJ
155115	CPT-7-61	VOC	6.8	2 - 6	J/UJ
155115	CPT-7-67	VOC	6.8	2 - 6	J/UJ
155115	CPT-7-73	VOC	6.8	2 - 6	J/UJ
155115	CPT-7-97	VOC	6.8	2 - 6	J/UJ
April 2002 Surface Water Sampling					
158210	FC-3940-L	VOC	7.4	2 - 6	J/UJ
158210	FC-7200-L	VOC	7.4	2 - 6	J/UJ
158210	FC-5570-L	VOC	7.4	2 - 6	J/UJ
158210	Trip blank	VOC	7.4	2 - 6	J/UJ
4th Quarter 2002 Ground Water Monitoring					
G2K150313	MW-1	VOC	11	2 - 6	J/UJ
G2K150313	MW-3	VOC	11	2 - 6	J/UJ
G2K150313	MW-4	VOC	11	2 - 6	J/UJ
G2K150313	MW-5	VOC	11	2 - 6	J/UJ
G2K150313	MW-6	VOC	11	2 - 6	J/UJ
G2K150313	MW-7	VOC	11	2 - 6	J/UJ
G2K150313	MW-1D	VOC	11	2 - 6	J/UJ
G2K150313	MW-2D	VOC	11	2 - 6	J/UJ
G2K150313	MW-3D	VOC	11	2 - 6	J/UJ
G2K150313	MW-3D Dup	VOC	11	2 - 6	J/UJ

Key:
J/UJ = Detected results are estimated; nondetected results are estimated at the report limit
°C = Degrees Celsius
Dup = Duplicate
VOC = Volatile organic compounds
CPT = Cone penetration testing

Table F-2
Samples with Exceeded Holding Times
Various Investigations
Hookston Station
Pleasant Hill, California

Lab Package	Sample ID	Method	Holding Time	# of Days Exceeded	ERM Qualifier
2nd Quarter 2004 Ground Water Monitoring					
G4D230311	MW-13B	Nitrate as N	48 hours	3	J
G4D230311	MW-20A	Nitrate as N	48 hours	3	J
G4D230311	MW-20B	Nitrate as N	48 hours	3	R
G4D230311	MW-15A	Nitrate as N	48 hours	3	J
G4D230311	MW-15C	Nitrate as N	48 hours	3	R
G4D230311	MW-15B	Nitrate as N	48 hours	2	J
G4D270201	MW-10B	Nitrate as N	48 hours	1	J
G4D270201	MW-10B Dup	Nitrate as N	48 hours	1	J
G4D270201	MW-16B	Nitrate as N	48 hours	1	J
September 2002 CPT Investigation					
G2I190238	CPT-23-30 RE	VOC	14 days	1	J/UJ
G2I270328	CPT-25-52 RE	VOC	14 days	1	J/UJ
September 2003 Source Area Investigation					
116613	B-62-10	VOC	14 days	5	J/UJ
116613	B-62-15	VOC	14 days	5	J/UJ

Key:
J = Estimated detected result
J/UJ = Detected results are estimated; nondetected results are estimated at the report limit
R = Rejected nondetected result
CPT = Cone penetration testing
VOC = Volatile organic compounds
Dup = Duplicate
RE = Reanalysis

Table F-3
Blank and Associated Suspect Sample Detections
Various Investigations
Hookston Station
Pleasant Hill, California

Lab Package	Blank ID	Associated Samples	Detected Compound	Reported Concentration	Report Limit	Units	ERM Qualifier
4rd Quarter 2001 Ground Water Monitoring							
156194	MB (12/31)	NA	1,2,4-Trichlorobenzene	0.6	0.5	µg/L	NA
156194	MB (01/02)	NA	Hexachlorobutadiene	0.7	0.5	µg/L	NA
156194	MB (01/02)	NA	Hexachlorobutadiene	0.6	0.5	µg/L	NA
2nd Quarter 2002 Ground Water Monitoring							
G2F240195	NA	FC-154-1	Acetone	6.1	10	µg/L	10 U
3rd Quarter 2002 Ground Water Monitoring							
G2I260274	NA	MW-1	Acetone	29	100	µg/L	100 U
G2I260274	NA	MW-4	Acetone	26	10	µg/L	26 U
G2I260274	NA	MW-4	2-Butanone	5.9	2	µg/L	5.9 U
G2I260274	NA	MW-5	Acetone	7.6	10	µg/L	10 U
G2I260274	NA	MW-7	Acetone	26	50	µg/L	50 U
G2I260274	NA	MW-7	2-Butanone	6	10	µg/L	10 U
G2I260274	NA	MW-1D-51	Acetone	110	500	µg/L	500 U
G2I260274	NA	MW-3D	Acetone	110	500	µg/L	500 U
G2I260274	NA	MW-5 Dup	Acetone	6.4	10	µg/L	10 U
G2I260274	NA	FC-4095	Acetone	2.2	10	µg/L	10 U
4th Quarter 2002 Ground Water Monitoring							
G2K150313	NA	MW-4	Acetone	12	20	µg/L	20 U
1st Quarter 2003 Ground Water Monitoring							
G3B200221	NA	MW-02D	Acetone	2.3	10	µg/L	10 U
G3B200221	NA	MW-06	Acetone	1.6	10	µg/L	10 U
G3B200221	NA	MW-05	Acetone	1.8	10	µg/L	10 U
G3B200221	NA	MW-07	Acetone	12	100	µg/L	100 U
G3B200221	NA	MW-04	Acetone	7.7	10	µg/L	10 U
G3B200221	NA	MW-04	Methylene chloride	0.98	1	µg/L	1 U
G3B200221	NA	MW-01 lower	Acetone	14	20	µg/L	20 U
G3B200221	FB	NA	Acetone	2	10	µg/L	NA
G3B200221	FB	See below	Bromomethane	0.23	1	µg/L	NA
G3B200221	TB	NA	Acetone	2.2	10	µg/L	NA
G3B200221	TB	See below	Bromomethane	0.27	1	µg/L	NA
G3B200221	MB (2/20)	See below	Bromomethane	0.31	1	µg/L	NA
G3B200221	MB (2/21)	See below	Bromomethane	0.24	1	µg/L	NA
G3B200221	MB (2/20)	MW-02D	Bromomethane	0.18	1	µg/L	1 U

Table F-3
Blank and Associated Suspect Sample Detections
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Hookston Station
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Lab Package	Blank ID	Associated Samples	Detected Compound	Reported Concentration	Report Limit	Units	ERM Qualifier
G3B200221	MB (2/20)	MW-06	Bromomethane	0.18	1	µg/L	1 U
G3B200221	MB (2/20)	MW-05	Bromomethane	0.3	1	µg/L	1 U
G3B200221	MB (2/20)	MW-04	Bromomethane	0.28	1	µg/L	1 U
2nd Quarter 2003 Ground Water Monitoring							
G3E070231	NA	MW-01D lower	Acetone	24	100	µg/L	100 U
G3E070231	NA	MW-02D	Acetone	2.6	10	µg/L	10 U
G3E070231	NA	MW-04	Acetone	9.5	10	µg/L	10 U
G3E070231	NA	MW-05	Acetone	2.7	10	µg/L	10 U
G3E070231	NA	MW-06	Acetone	2.7	10	µg/L	10 U
G3E070231	NA	MW-07	Acetone	17	100	µg/L	100 U
G3E070231	TB	NA	Acetone	2.5	10	µg/L	NA
G3E070231	FB	NA	Acetone	2.2	10	µg/L	NA
G3E070231	NA	MW-05D	Acetone	3.2	10	µg/L	10 U
3rd Quarter 2003 Ground Water Monitoring							
G3G230329	FB	NA	Acetone	8.1	10	µg/L	NA
G3G230329	FB	NA	Bromodichloromethane	3.3	1	µg/L	NA
G3G230329	FB	NA	Dibromochloromethane	0.41	1	µg/L	NA
G3G230329	FB	NA	Chloroform	25	1	µg/L	NA
G3G230329	TB	NA	Acetone	8.8	10	µg/L	NA
G3G230329	NA	MW-2D	Acetone	2.3	10	µg/L	10 U
G3G230329	NA	MW-6	Acetone	10	10	µg/L	10 U
G3G230329	NA	MW-1D	Acetone	180	1000	µg/L	1000 U
G3G230329	NA	MW-5	Acetone	14	10	µg/L	14 U
G3G230329	NA	MW-7	Acetone	25	100	µg/L	100 U
G3G230329	NA	MW-1	Acetone	24	200	µg/L	200 U
G3G230329	NA	MW-4	Acetone	18	10	µg/L	18 U
G3G230329	NA	MW-4	2-Butanone	1.4	2	µg/L	2 U
4th Quarter 2003 Ground Water Monitoring							
G3J290266	FB	NA	Acetone	2.2	10	µg/L	NA
G3J290266	FB	NA	Methylene chloride	0.49	1	µg/L	NA
G3J290266	FB	NA	Trichloroethene	0.38	1	µg/L	NA
G3J290266	TB	NA	Acetone	1.5	10	µg/L	NA
G3J290266	NA	MW-2D	Acetone	3.3	10	µg/L	10 U
G3J290266	NA	MW-2D	2-Butanone	1.5	2	µg/L	2 U
G3J290266	NA	MW-2D Dup	Acetone	2.8	10	µg/L	10 U

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Lab Package	Blank ID	Associated Samples	Detected Compound	Reported Concentration	Report Limit	Units	ERM Qualifier
G3J290266	NA	MW-2D Dup	2-Butanone	1.5	2	µg/L	2 U
G3J290266	NA	MW-6	Acetone	2.9	10	µg/L	10 U
G3J290266	NA	MW-5	Acetone	3.5	10	µg/L	10 U
G3J290266	NA	MW-5	2-Butanone	1.8	2	µg/L	2 U
G3J290266	NA	MW-4	Acetone	6.8	10	µg/L	10 U
G3K040323	TB	NA	Acetone	2.2	10	µg/L	NA
G3K040323	TB	NA	Trichloroethene	0.72	1	µg/L	NA
1st Quarter 2004 Ground Water Monitoring							
120085	TB	NA	Methylene chloride	1.38	2	µg/L	NA
120085	TB	NA	Acetone	3.41	5	µg/L	NA
120085	NA	MW-15C	Acetone	6.53	5	µg/L	6.53 U
120085	NA	MW-19A	Acetone	3.16	5	µg/L	5 U
120085	NA	MW-19B	Acetone	3.14	5	µg/L	5 U
120085	NA	MW-19C	Acetone	3.09	5	µg/L	5 U
120085	NA	MW-17A	Acetone	6.18	10	µg/L	10 U
120085	NA	MW-17B	Acetone	6.2	5	µg/L	6.2 U
120085	NA	MW-26B	Acetone	4.92	5	µg/L	5 U
120085	NA	MW-18A	Acetone	3.42	5	µg/L	5 U
120085	NA	MW-18B	Acetone	2.89	5	µg/L	5 U
120085	NA	MW-4	Acetone	3.66	5	µg/L	5 U
120085	NA	MW-22B	Acetone	6.42	5	µg/L	6.42 U
2nd Quarter 2004 Ground Water Monitoring							
G4D210166	NA	MW-8B	Acetone	6.9	25	µg/L	25 U
G4D210166	NA	MW-8B Dup	Acetone	5.7	25	µg/L	25 U
G4D210166	MB (4/23)	NA	Copper	0.00034	0.002	mg/L	NA
G4D210166	MB (4/23)	NA	Zinc	0.0031	0.005	mg/L	NA
G4D210166	MB (4/29)	See below	Methane	0.00063	0.001	mg/L	NA
G4D210166	MB (4/29)	MW-8B	Methane	0.00089	0.001	mg/L	0.001 U
G4D210166	MB (4/29)	MW-8B Dup	Methane	0.0011	0.001	mg/L	0.0011 U
G4D210166	MB (4/29)	MW-3	Methane	0.00096	0.001	mg/L	0.001 U
G4D220244	NA	MW-4	Acetone	14	100	µg/L	100 U
G4D220244	MB (5/1)	NA	Sodium	0.098	0.5	mg/L	NA
G4D220244	MB (5/4)	NA	Copper	0.00038	0.002	mg/L	NA
G4D220244	MB (5/4)	NA	Nickel	0.00012	0.002	mg/L	NA
G4D220244	MB (5/4)	NA	Zinc	0.0011	0.005	mg/L	NA
G4D220244	MB (4/29)	See below	Methane	0.00063	0.001	mg/L	NA
G4D220244	MB (4/29)	MW-8A	Methane	0.00065	0.001	mg/L	0.001 U

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Lab Package	Blank ID	Associated Samples	Detected Compound	Reported Concentration	Report Limit	Units	ERM Qualifier
G4D230311	MB (5/7)	NA	Total organic carbon	0.11	1	mg/L	NA
G4D230311	MB (5/1)	NA	Sodium	0.098	0.5	mg/L	NA
G4D230311	MB (5/4)	NA	Copper	0.0003	0.002	mg/L	NA
G4D230311	MB (5/4)	See below	Lead	0.00062	0.001	mg/L	NA
G4D230311	MB (5/4)	MW-13B	Lead	0.00032	0.001	mg/L	0.001 U
G4D230311	MB (5/4)	MW-15B	Lead	0.0026	0.001	mg/L	0.0026 U
G4D270201	NA	MW-16B	Acetone	28	100	µg/L	100 U
G4D270201	MB (5/7)	See below	Chromium	0.0018	0.002	mg/L	NA
G4D270201	MB (5/7)	NA	Copper	0.00038	0.002	mg/L	NA
G4D270201	MB (5/7)	NA	Nickel	0.00013	0.002	mg/L	NA
G4D270201	MB (5/7)	NA	Sodium	0.18	0.5	mg/L	NA
G4D270201	MB (5/7)	MW-10B	Chromium	0.0042	0.002	mg/L	0.0042 U
G4D270201	MB (5/7)	MW-10B dup	Chromium	0.0031	0.002	mg/L	0.0031 U
G4D270201	MB (4/29)	See below	Methane	0.00063	0.001	mg/L	NA
G4D270201	MB (4/29)	MW-16B	Methane	0.002	0.001	mg/L	0.002 U
G4D290127	NA	MW-9B	Acetone	1.3	10	µg/L	10 U
G4D290127	NA	MW-24A	Acetone	3	25	µg/L	25 U
G4D290127	TB	NA	Acetone	1.3	10	µg/L	NA
G4D290127	MB (5/7)	NA	Sodium	0.18	0.5	mg/L	NA
G4D290127	MB (5/13)	NA	Boron	0.0086	0.05	mg/L	NA
G4D290127	MB (5/13)	See below	Chromium	0.0012	0.002	mg/L	NA
G4D290127	MB (5/13)	See below	Copper	0.00031	0.002	mg/L	NA
G4D290127	MB (5/13)	See below	Zinc	0.004	0.005	mg/L	NA
G4D290127	MB (5/13)	MW-12B	Chromium	0.0011	0.002	mg/L	0.002 U
G4D290127	MB (5/13)	MW-12B	Copper	0.0012	0.002	mg/L	0.002 U
G4D290127	MB (5/13)	MW-12B	Zinc	0.0088	0.005	mg/L	0.0088 U
G4D290127	MB (5/13)	MW-11B	Chromium	0.005	0.002	mg/L	0.005 U
G4D290127	MB (5/13)	MW-11B	Zinc	0.015	0.005	mg/L	0.015 U
G4D290127	MB (5/13)	MW-16A	Zinc	0.0097	0.005	mg/L	0.0097 U
G4D290127	MB (5/3)	See below	Methane	0.00067	0.001	mg/L	NA
G4D290127	MB (5/3)	MW-12B	Methane	0.0011	0.001	mg/L	0.0011 U
G4D290127	MB (5/3)	MW-11B	Methane	0.0012	0.001	mg/L	0.0012 U
G4D290127	MB (5/3)	MW-17A	Methane	0.0011	0.001	mg/L	0.0011 U
G4D290127	MB (5/3)	MW-17B	Methane	0.00064	0.001	mg/L	0.001 U
G4D290239	NA	MW-19C	Acetone	1.9	10	µg/L	10 U
G4D290239	NA	MW-19C Dup	Acetone	1.8	10	µg/L	10 U
G4D290239	NA	MW-18B	Acetone	2.3	10	µg/L	10 U
G4D290239	NA	MW-26B	Acetone	2.1	10	µg/L	10 U
G4D290239	MB (5/7)	NA	Calcium	0.013	0.5	mg/L	NA
G4D290239	MB (5/7)	NA	Sodium	0.25	0.5	mg/L	NA

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Blank and Associated Suspect Sample Detections
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Lab Package	Blank ID	Associated Samples	Detected Compound	Reported Concentration	Report Limit	Units	ERM Qualifier
G4D290239	MB (5/13)	See below	Chromium	0.0014	0.002	mg/L	NA
G4D290239	MB (5/13)	See below	Copper	0.00039	0.002	mg/L	NA
G4D290239	MB (5/13)	See below	Zinc	0.0042	0.005	mg/L	NA
G4D290239	MB (5/7)	MW-26B	Chromium	0.0063	0.002	mg/L	0.0063 U
G4D290239	MB (5/13)	MW-26B	Copper	0.0018	0.002	mg/L	0.002 U
G4D290239	MB (5/13)	MW-26B	Zinc	0.013	0.005	mg/L	0.013 U
G4D290239	MB (5/14)	NA	Total organic carbon	0.072	1	mg/L	NA
G4D290239	MB (5/3)	See below	Methane	0.00067	0.001	mg/L	NA
G4D290239	MB (5/3)	MW-14B	Methane	0.0011	0.001	mg/L	0.0011 U
G4D290239	MB (5/3)	MW-14A	Methane	0.0019	0.001	mg/L	0.0019 U
G4D290239	MB (5/3)	MW-26B	Methane	0.00062	0.001	mg/L	0.001 U
G4F100181	TB	NA	Acetone	4.3	10	µg/L	NA
G4F100181	NA	MW-23B	Acetone	2.3	10	µg/L	10 U
G4F100181	NA	MW-23C	Acetone	1.9	10	µg/L	10 U
G4F100181	NA	MW-25B	Acetone	4.6	10	µg/L	10 U
G4F100181	NA	MW-25B	2-Butanone	1.6	2	µg/L	2 U
G4F100181	NA	MW-25A	Acetone	2.1	10	µg/L	10 U
September/October 2001 GeoProbe Investigation							
154395	MB (10/3)	NA	Naphthalene	0.6	0.5	µg/L	NA
154395	MB (10/3)	NA	1,2,3-Trichlorobenzene	0.6	0.5	µg/L	NA
154461	NA	B-46-20	Acetone	11	10	µg/L	11 U
154461	MB (10/5)	NA	Bromomethane	1	1	µg/L	NA
154461	MB (10/5)	NA	Hexachlorobutadiene	0.8	0.5	µg/L	NA
154461	MB (10/10)	NA	Hexachlorobutadiene	0.5	0.5	µg/L	NA
October/November 2001 CPT Investigation							
154947	MB (10/28)	NA	sec-Butylbenzene	1.1	0.5	µg/L	NA
154947	MB (10/28)	NA	para-Isopropyltoluene	1.3	0.5	µg/L	NA
154947	MB (10/28)	NA	Naphthalene	1.3	0.5	µg/L	NA
154947	MB (10/30)	NA	Naphthalene	0.7	0.5	µg/L	NA
155358	MB (11/18)	NA	Bromomethane	1.3	1	µg/L	NA
September/October 2002 CPT Investigation							
G2I190238	TB	NA	Bromomethane	0.77	1	µg/L	NA
G2I190238	MB (9/27)	See below	Bromomethane	1.1	1	µg/L	NA
G2I190238	MB (10/3)	NA	Bromomethane	0.32	1	µg/L	NA

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Various Investigations
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Lab Package	Blank ID	Associated Samples	Detected Compound	Reported Concentration	Report Limit	Units	ERM Qualifier
G2I190238	MB (10/3)	NA	Acetone	2.4	10	µg/L	NA
G2I190238	MB (9/27)	CPT-23-50	Bromomethane	2.6	5	µg/L	5 U
G2I190238	MB (9/27)	CPT-23-50 Dup	Bromomethane	0.61	2	µg/L	2 U
G2I190238	MB (9/27)	CPT-23-50 Dup RE	Bromomethane	3.2	5	µg/L	5 U
G2I190238	NA	CPT-24-55	Acetone	4.5	20	µg/L	20 U
G2I190238	NA	CPT-23-50 Dup	Acetone	4.1	20	µg/L	20 U
G2I190238	NA	CPT-23-50 Dup RE	Acetone	11	50	µg/L	50 U
G2I190238	NA	CPT-23-72	Acetone	2.2	10	µg/L	10 U
G2I190238	NA	CPT-23-30	Acetone	14	50	µg/L	50 U
G2I190238	NA	CPT-23-30 RE	Acetone	23	100	µg/L	100 U
G2I190238	NA	CPT-22-18 Dup	Acetone	29	200	µg/L	200 U
G2I190238	NA	CPT-22-64	Acetone	1.4	10	µg/L	10 U
G2I270328	TB	NA	Acetone	3.2	10	µg/L	NA
G2I270328	MB (10/10)	NA	cis-1,2-Dichloroethene	0.12	1	µg/L	NA
G2I270328	NA	CPT-21-50	Acetone	3.3	10	µg/L	10 U
G2I270328	NA	CPT-25-52	Acetone	11	50	µg/L	50 U
G2I270328	NA	CPT-25-52 RE	Acetone	20	100	µg/L	100 U
G2I270328	NA	CPT-27-19	Acetone	3.2	10	µg/L	10 U
G2I270328	NA	CPT-31-37	Acetone	4.8	10	µg/L	10 U
G2I270328	NA	CPT-31-48	Acetone	3.1	10	µg/L	10 U
G2I270328	NA	CPT-32-49	Acetone	3.3	10	µg/L	10 U
G2I270328	NA	CPT-32-49 Dup	Acetone	2.4	10	µg/L	10 U
September 2003 Source Area Investigation							
116242	NA	B-59-2.5	Acetone	30	16.8	µg/kg	30 U
116255	NA	B-85-2.5	Acetone	20.2	19	µg/kg	20.2 U
116255	MB (9/25)	NA	Carbon disulfide	1.05	1.0	µg/L	NA
116257	NA	B-70-55	Acetone	44.2	5.0	µg/L	44.2 U
116257	NA	B-70-0.5	Butylbenzylphthalate	205	339	µg/kg	339 U
116257	NA	B-70-0.5	bis(2-Ethylhexyl)phthalate	390	271	µg/kg	390 U
116257	NA	B-69-0.5	Butylbenzylphthalate	425	330	µg/kg	425 U
116257	MB (9/25)	See below	Carbon disulfide	1.05	1.0	µg/L	NA
116257	MB (9/25)	B-70-55	Carbon disulfide	2.19	1.0	µg/L	2.19 U
116272	NA	B-60-0.5	Acetone	30.7	35.2	µg/kg	35.2 U
116272	NA	B-60-0.5RE	Methylene chloride	40.5	11.3	µg/kg	40.5 U
116272	NA	B-60-2.5RE	Methylene chloride	24.7	13.3	µg/kg	24.7 U
116272	NA	B-61-2.5RE	Methylene chloride	29.5	6.54	µg/kg	29.5 U
116272	NA	B-61-10.5	Methylene chloride	1.5	1.73	µg/kg	1.73 U

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Lab Package	Blank ID	Associated Samples	Detected Compound	Reported Concentration	Report Limit	Units	ERM Qualifier
116272	NA	B-61-15.5	Methylene chloride	4.15	1.83	µg/kg	4.15 U
116272	NA	B-61-20.5	Methylene chloride	4.58	1.54	µg/kg	4.58 U
116272	NA	B-61-25.5	Methylene chloride	3.96	1.59	µg/kg	3.96 U
116272	NA	B-61-30.5	Methylene chloride	4.32	1.77	µg/kg	4.32 U
116272	NA	B-63-0.5	Methylene chloride	5.83	1.3	µg/kg	5.83 U
116272	NA	B-63-0.5RE	Methylene chloride	14.9	5.57	µg/kg	14.9 U
116272	NA	B-63-2.5	Methylene chloride	5.44	2.03	µg/kg	5.44 U
116272	NA	B-63-2.5RE	Methylene chloride	16.5	6.53	µg/kg	16.5 U
116272	NA	B-67-0.5	Methylene chloride	3.39	1.64	µg/kg	3.39 U
116272	NA	B-67-0.5RE	Methylene chloride	3.85	1.85	µg/kg	3.85 U
116272	NA	B-67-2.5	Methylene chloride	5.39	1.89	µg/kg	5.39 U
116272	NA	B-67-5.5	Methylene chloride	4.01	1.72	µg/kg	4.01 U
116272	NA	B-67-10.5	Methylene chloride	4.24	1.94	µg/kg	4.24 U
116272	NA	B-67-15.5	Methylene chloride	4.72	2.01	µg/kg	4.72 U
116272	NA	B-67-20.5	Methylene chloride	3.57	1.51	µg/kg	3.57 U
116272	NA	B-67-25.5	Methylene chloride	4.5	1.87	µg/kg	4.5 U
116272	NA	B-67-30.5	Methylene chloride	4.46	1.87	µg/kg	4.46 U
116272	MB (9/29)	NA	Methylene chloride	1.26	1.0	µg/kg	NA
116272	MB (10/1)	NA	Methylene chloride	0.989	1.0	µg/kg	NA
116274	NA	B-74-0.5	Acetone	24.6	18.1	µg/kg	24.6 U
116274	NA	B-74-2.5	Acetone	41	14.8	µg/kg	41 U
116274	NA	B-74-10.5	Methylene chloride	4.49	2.01	µg/kg	4.49 U
116274	NA	B-74-15.5	Methylene chloride	0.903	1.56	µg/kg	1.56 U
116274	NA	B-70-30	Acetone	8.2	5.0	µg/L	8.2 U
116274	NA	B-69-55	Acetone	13.2	5.0	µg/L	13.2 U
116274	MB (9/26)	NA	Carbon disulfide	1.13	1.0	µg/L	NA
116317	NA	B-63-5.5	Methylene chloride	2.48	1.75	µg/kg	2.48 U
116317	NA	B-63-10.5	Methylene chloride	5.99	1.6	µg/kg	5.99 U
116317	NA	B-63-17.5	Methylene chloride	1.88	1.77	µg/kg	1.88 U
116317	NA	B-66-2.5	Methylene chloride	3.79	1.81	µg/kg	3.79 U
116317	NA	B-66-5.5	Methylene chloride	0.896	1.7	µg/kg	1.7 U
116317	NA	B-66-10.5	Methylene chloride	2.4	1.73	µg/kg	2.4 U
116317	NA	B-66-15.5	Methylene chloride	2.49	1.83	µg/kg	2.49 U
116317	NA	B-67-55	Acetone	13.6	10	µg/L	13.6 U
116317	MB (9/25)	NA	Carbon disulfide	1.05	1.0	µg/L	NA
116318	TB	NA	Acetone	3.08	5.0	µg/L	NA
116318	TB	NA	Chloroform	43.4	1.0	µg/L	NA
116318	TB	NA	Bromodichloromethane	7.01	1.0	µg/L	NA
116318	TB	NA	Dibromochloromethane	0.963	1.0	µg/L	NA
116318	NA	B-63-20.5	Methylene chloride	3.05	1.63	µg/kg	3.05 U

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Lab Package	Blank ID	Associated Samples	Detected Compound	Reported Concentration	Report Limit	Units	ERM Qualifier
116318	NA	B-63-25.5	Methylene chloride	3.09	1.6	µg/kg	3.09 U
116318	NA	B-77-2.5	Methylene chloride	3.73	1.82	µg/kg	3.73 U
116318	NA	B-66-20.5	Methylene chloride	3.37	1.75	µg/kg	3.37 U
116318	MB (9/26)	NA	Carbon disulfide	1.13	1.0	µg/L	NA
116318	MB (10/3)	NA	Methylene chloride	1.05	1.0	µg/L	NA
116362	NA	B-82-2.5	Methylene chloride	3.9	1.97	µg/kg	3.9 U
116362	NA	B-82-5.5	Methylene chloride	3.91	1.89	µg/kg	3.91 U
116362	NA	B-82-8.5	Methylene chloride	3.22	1.64	µg/kg	3.22 U
116362	NA	B-82-10.5	Methylene chloride	3.64	1.84	µg/kg	3.64 U
116362	NA	B-81-2.5	Methylene chloride	3.92	1.58	µg/kg	3.92 U
116362	NA	B-81-2.5 RE	Methylene chloride	8.83	4.91	µg/kg	8.83 U
116362	NA	B-81-5.5	Methylene chloride	2.9	1.49	µg/kg	2.9 U
116362	NA	B-81-10.5	Methylene chloride	2.55	1.41	µg/kg	2.55 U
116362	NA	B-81-15.5	Methylene chloride	2.81	1.62	µg/kg	2.81 U
116362	NA	B-79-2.5	Methylene chloride	2.14	1.44	µg/kg	2.14 U
116362	NA	B-79-2.5 RE	Methylene chloride	7.55	3.93	µg/kg	7.55 U
116362	NA	B-79-5.5	Methylene chloride	2.44	1.67	µg/kg	2.44 U
116362	NA	B-79-10.5	Methylene chloride	2.42	1.71	µg/kg	2.42 U
116362	NA	B-79-15.5	Methylene chloride	2.44	1.65	µg/kg	2.44 U
116362	NA	B-79-20.5	Methylene chloride	2.24	1.63	µg/kg	2.24 U
116362	NA	B-79-25.5	Methylene chloride	2.41	1.61	µg/kg	2.41 U
116362	NA	B-75-5.5	Methylene chloride	1.92	1.40	µg/kg	1.92 U
116362	NA	B-75-10.5	Methylene chloride	2.17	1.50	µg/kg	2.17 U
116362	NA	B-75-15.5	Methylene chloride	2.95	1.96	µg/kg	2.95 U
116362	NA	B-98-2.5	Acetone	20.2	17	µg/kg	20.2 U
116362	NA	B-98-2.5	Methylene chloride	2.57	1.70	µg/kg	2.57 U
116362	MB (9/30)	NA	Methylene chloride	1.77	1.0	µg/L	NA
116362	MB (10/3)	NA	Methylene chloride	1.05	1.0	µg/L	NA
116406	NA	B-100-2.5	Methylene chloride	3.01	1.97	µg/kg	3.01 U
116406	NA	B-72-0.5	Methylene chloride	1.72	1.55	µg/kg	1.72 U
116406	NA	B-71-0.5	Methylene chloride	5.12	1.82	µg/kg	5.12 U
116406	NA	B-71-2.5	Acetone	96.1	17.1	µg/kg	96.1 U
116406	NA	B-71-2.5	Methylene chloride	1.33	1.71	µg/kg	1.71 U
116406	NA	B-71-5.5	Acetone	36	21.2	µg/kg	36 U
116406	NA	B-71-5.5	Methylene chloride	2.73	2.12	µg/kg	2.73 U
116406	NA	B-71-5.5 RE	Methylene chloride	33.2	6.55	µg/kg	33.2 U
116406	NA	B-71-10.5	Methylene chloride	2.11	1.47	µg/kg	2.11 U
116406	NA	B-71-15.5	Methylene chloride	2.47	1.98	µg/kg	2.47 U
116406	NA	B-71-20.5	Methylene chloride	2.4	2.01	µg/kg	2.4 U
116406	NA	B-76-2.5	Acetone	93	19.4	µg/kg	93 U
116406	NA	B-76-2.5	Methylene chloride	3.62	1.94	µg/kg	3.62 U

Table F-3
Blank and Associated Suspect Sample Detections
Various Investigations
Hookston Station
Pleasant Hill, California

Lab Package	Blank ID	Associated Samples	Detected Compound	Reported Concentration	Report Limit	Units	ERM Qualifier
116406	NA	B-76-2.5 RE	Acetone	157	52.5	µg/kg	157 U
116406	NA	B-76-2.5 RE	Methylene chloride	17.3	5.25	µg/kg	17.3 U
116406	NA	B-76-5.5	Methylene chloride	3.91	1.96	µg/kg	3.91 U
116406	NA	B-76-10.5	Methylene chloride	3.0	1.83	µg/kg	3.0 U
116406	NA	B-76-15.5	Methylene chloride	1.79	1.99	µg/kg	1.99 U
116406	NA	B-78-2.5	Acetone	62.9	17.9	µg/kg	62.9 U
116406	NA	B-78-2.5	Methylene chloride	2.17	1.79	µg/kg	2.17 U
116406	NA	B-78-5.5	Methylene chloride	2.52	1.89	µg/kg	2.52 U
116406	NA	B-78-10.5	Methylene chloride	1.62	1.66	µg/kg	1.66 U
116406	NA	B-78-20.5	Methylene chloride	1.28	1.96	µg/kg	1.96 U
116406	NA	B-84-2.5	Methylene chloride	2.06	1.85	µg/kg	2.06 U
116406	MB (9/29)	NA	Methylene chloride	0.708	1.0	µg/kg	NA
116406	MB (10/1)	NA	Methylene chloride	0.989	1.0	µg/kg	NA
116460	NA	MW-11B-2.5	Methylene chloride	3.49	1.5	µg/kg	3.49 U
116460	NA	B-87-55	Acetone	5.89	10.0	µg/L	10 U
116460	NA	B-87-2.0	Methylene chloride	4.63	2.03	µg/kg	4.63 U
116460	NA	B-80-2.5	Methylene chloride	3.84	1.72	µg/kg	3.84 U
116460	NA	B-80-7.0	Acetone	14.2	20.8	µg/kg	20.8 U
116460	NA	B-80-7.0	Methylene chloride	4.94	2.08	µg/kg	4.94 U
116460	NA	MW-08-35	Acetone	13.9	10.0	µg/L	13.9 U
116460	NA	MW-08-2.5	Methylene chloride	3.58	1.61	µg/kg	3.58 U
116460	NA	B-89-25	Methylene chloride	4.39	1.83	µg/kg	4.39 U
116460	NA	B-99-2.5	Methylene chloride	4.59	1.87	µg/kg	4.59 U
116460	MB (10/7)	NA	Methylene chloride	2.32	1.0	µg/kg	NA
116521	NA	B-96-55	Acetone	7.58	5.0	µg/L	7.58 U
116521	NA	B-96-2.5	Acetone	9.49	18.7	µg/kg	18.7 U
116521	NA	B-96-2.5	Methylene chloride	8.62	1.87	µg/kg	8.62 U
116521	NA	B-94-2.5	Acetone	10.7	18.1	µg/kg	18.1 U
116521	NA	B-94-2.5	Methylene chloride	8.03	1.81	µg/kg	8.03 U
116521	NA	B-95-2.5	Acetone	50.7	19.7	µg/kg	50.7 U
116521	NA	B-95-2.5	Methylene chloride	9.6	1.97	µg/kg	9.6 U
116613	NA	MW-13A-2.5	Methylene chloride	1.77	1.86	µg/kg	1.86 U
116613	NA	MW-13A-5.5	Methylene chloride	1.97	1.58	µg/kg	1.97 U
116613	NA	MW-13A-10.5	Methylene chloride	1.5	1.58	µg/kg	1.58 U
116613	NA	MW-13A-15.5	Methylene chloride	3.19	1.86	µg/kg	3.19 U
116613	NA	SS-1	Methylene chloride	1.37	1.9	µg/kg	1.9 U
116613	NA	SS-2	Methylene chloride	1.49	2.02	µg/kg	2.02 U
116613	NA	MW-12B-0.5	Methylene chloride	3.07	1.59	µg/kg	3.07 U
116613	NA	MW-12B-2.5	Methylene chloride	7.52	10.8	µg/kg	10.8 U
116613	NA	MW-12B-5.5	Methylene chloride	1.36	1.64	µg/kg	1.64 U

Table F-3
Blank and Associated Suspect Sample Detections
Various Investigations
Hookston Station
Pleasant Hill, California

Lab Package	Blank ID	Associated Samples	Detected Compound	Reported Concentration	Report Limit	Units	ERM Qualifier
116613	NA	MW-12B-10.5	Methylene chloride	1.16	1.61	µg/kg	1.61 U
116613	NA	MW-12B-15.5	Methylene chloride	2.14	3.09	µg/kg	3.09 U
116613	NA	B-65-2.5	Methylene chloride	7.93	10.3	µg/kg	10.3 U
116613	NA	B-65-5.5	Methylene chloride	1.38	1.75	µg/kg	1.75 U
116613	NA	B-65-10.5	Methylene chloride	1.32	1.78	µg/kg	1.78 U
116613	NA	B-65-15	Methylene chloride	1.42	1.99	µg/kg	1.99 U
116613	NA	B-88-2.5	Methylene chloride	1.46	1.7	µg/kg	1.7 U
116613	NA	B-88-5.5	Methylene chloride	1.0	1.56	µg/kg	1.56 U
116613	NA	B-88-10.5	Methylene chloride	1.17	1.98	µg/kg	1.98 U
116613	NA	B-62-2.5	Methylene chloride	7.62	8.81	µg/kg	8.81 U
116613	NA	B-62-5.0	Methylene chloride	2.53	2.99	µg/kg	2.99 U
116672	NA	B-93-2.5	Methylene chloride	2.72	1.62	µg/kg	2.72 U
116672	NA	B-93-5.0	Methylene chloride	2.09	1.78	µg/kg	2.09 U
116672	NA	B-93-10.0	Methylene chloride	2.15	1.82	µg/kg	2.15 U
116672	NA	B-93-15	Acetone	10.5	17.8	µg/kg	17.8 U
116672	NA	B-93-15	Methylene chloride	2.17	1.78	µg/kg	2.17 U
116672	NA	B-91-2.5	Acetone	17	17.9	µg/kg	17.9 U
116672	NA	B-91-2.5	Methylene chloride	2.6	1.79	µg/kg	2.6 U
116672	NA	B-91-55	Acetone	11.8	10	µg/L	11.8 U
116672	MB (10/14)	NA	Methylene chloride	0.887	1.0	µg/kg	NA
116918	NA	MW-11A	Acetone	3.22	5.0	µg/L	5.0 U
116918	NA	MW-13B	Acetone	6.88	5.0	µg/L	6.88 U
116918	TB	NA	Acetone	2.79	5.0	µg/L	NA
October 2003 Soil Vapor Survey							
E3J150340	NA	ASV-01	Acetone	440	68.0	µg/m^3	440 U
E3J150340	NA	ASV-02	2-Butanone	54	29.0	µg/m^3	54 U
E3J150340	NA	ASV-03	Acetone	460	47.0	µg/m^3	460 U
E3J150340	NA	ASV-03	2-Butanone	63	59.0	µg/m^3	63 U
0310406	NA	ASV-04	Cyclohexane	4.7	2.9	µg/m^3	4.7 U
0310406	NA	ASV-04	2-Butanone	22	9.8	µg/m^3	22 U
0310406	NA	ASV-05	Acetone	200	33	µg/m^3	200 U
0310406	NA	ASV-05	2-Butanone	51	41	µg/m^3	51 U
0310406	NA	ASV-06	Methylene chloride	140	130	µg/m^3	140 U
0310406	NA	ASV-07	Cyclohexane	15	8.2	µg/m^3	15 U
0310406	NA	ASV-07	2-Butanone	76	28	µg/m^3	76 U
0310406	NA	ASV-07 Dup	Cyclohexane	15	8.2	µg/m^3	15 U
0310406	NA	ASV-07 Dup	2-Butanone	80	28	µg/m^3	80 U
0310406	NA	ASV-08	Cyclohexane	18	2.8	µg/m^3	18 U

Table F-3
Blank and Associated Suspect Sample Detections
Various Investigations
Hookston Station
Pleasant Hill, California

Lab Package	Blank ID	Associated Samples	Detected Compound	Reported Concentration	Report Limit	Units	ERM Qualifier
0310406	NA	ASV-08	2-Butanone	33	9.6	µg/m³	33 U
0310406	NA	ASV-09	2-Butanone	82	10	µg/m³	82 U
0310406	NA	ASV-10	2-Butanone	30	9.3	µg/m³	30 U
0310406	NA	ASV-11	Acetone	450	240	µg/m³	450 U
0310406	NA	ASV-11	Cyclohexane	150	87	µg/m³	150 U
0310406	NA	ASV-12	Cyclohexane	6	3.3	µg/m³	6 U
0310406	NA	ASV-12	2-Butanone	87	11	µg/m³	87 U
0310406	NA	ASV-12 Dup	Cyclohexane	6.7	3.4	µg/m³	6.7 U
0310406	NA	ASV-12 Dup	2-Butanone	85	12	µg/m³	85 U
0310406	NA	AA-01	Acetone	15	8.1	µg/m³	15 U

Key:
U = Nondetected
MB = Method blank
FB = Field blank
TB = Trip blank
µg/kg = Micrograms per kilogram
µg/L = Micrograms per liter
mg/L = Milligrams per liter
µg/m³ = Micrograms per cubic meter
RE = Reanalysis
Dup = Duplicate
CPT = Cone penetration testing
NA = Not applicable

Table F-4
Spike Recoveries Outside of Acceptable Limits
Various Investigations
Hookston Station
Pleasant Hill, California

Lab Package	MS/MSD Sample ID	Associated Sample	Compound	Recovery (%)	Limit (%)	RPD	RPD Limit	Result	ERM Qualifier
4th Quarter 2002 Ground Water Monitoring									
G2K150313	Batch QC	NA	Trichloroethene	0/0	70-130	0	25	NA	NA
2nd Quarter 2004 Ground Water Monitoring									
G4D210166	MW-1	NA	Chloride	115/104	90-110	7.7	10	NA	NA
G4D210166	MW-1	NA	Sulfate	121/107	90-110	7.5	10	NA	NA
G4D220244	Batch QC	NA	Toluene	121/116	80-120	4.2	17	NA	NA
G4D220244	MW-22B	See below	Calcium	116/113	91-111	0.63	20	NA	NA
G4D220244	MW-22B	MW-22B	Calcium	NA	NA	NA	NA	197	J
G4D220244	MW-22B	MW-22A	Calcium	NA	NA	NA	NA	270	J
G4D220244	MW-22B	MW-4	Calcium	NA	NA	NA	NA	167	J
G4D220244	MW-22B	MW-4 Dup	Calcium	NA	NA	NA	NA	162	J
G4D220244	MW-22B	MW-13A	Calcium	NA	NA	NA	NA	139	J
G4D220244	MW-22B	MW-8A	Calcium	NA	NA	NA	NA	178	J
G4D220244	MW-22B	MW-21B	Calcium	NA	NA	NA	NA	179	J
G4D220244	MW-22B	MW-21A	Calcium	NA	NA	NA	NA	290	J
G4D230311	MW-22B	MW-13B	Calcium	NA	NA	NA	NA	126	J
G4D230311	MW-22B	MW-20A	Calcium	NA	NA	NA	NA	176	J
G4D230311	MW-22B	MW-20B	Calcium	NA	NA	NA	NA	142	J
G4D230311	MW-22B	MW-15A	Calcium	NA	NA	NA	NA	212	J
G4D230311	MW-22B	MW-15C	Calcium	NA	NA	NA	NA	78.3	J
G4D230311	MW-22B	MW-15B	Calcium	NA	NA	NA	NA	116	J
G4D270201	Batch QC	NA	Chloride	0/3.4	90-110	1.5	10	NA	NA
G4D270201	MW-18B	See below	Sulfate	115/115	90-110	0.24	10	NA	NA
G4D270201	MW-18B	MW-10B	Sulfate	NA	NA	NA	NA	33.8	J
G4D270201	MW-18B	MW-10B Dup	Sulfate	NA	NA	NA	NA	35	J
G4D270201	MW-18B	MW-16B	Sulfate	NA	NA	NA	NA	169	J
G4D290127	Batch QC	NA	Antimony	111/114	88-112	3.2	15	NA	NA
G4D290127	Batch QC	NA	Barium	111/116	88-110	4.1	15	NA	NA
G4D290127	Batch QC	NA	Cadmium	111/114	86-112	2.1	15	NA	NA
G4D290127	Batch QC	NA	Lead	113/117	91-116	3.4	15	NA	NA
G4D290127	Batch QC	NA	Molybdenum	110/113	87-110	2.9	15	NA	NA
G4D290127	Batch QC	NA	Nickel	109/113	91-112	3	15	NA	NA
G4D290127	MW-18B	See below	Chloride	116/115	90-110	0.52	10	NA	NA
G4D290127	MW-12B	NA	Sulfate	111/109	90-110	1.5	10	NA	NA
G4D290127	MW-18B	See below	Sulfate	115/115	90-110	0.24	10	NA	NA
G4D290239	Batch QC	NA	Barium	110/111	88-110	1.6	15	NA	NA
G4D290239	MW-18B	See below	Chloride	116/115	90-110	0.52	10	NA	NA
G4D290239	MW-12B	NA	Sulfate	111/109	90-110	1.5	10	NA	NA
G4D290239	MW-18B	See below	Sulfate	115/115	90-110	0.24	10	NA	NA
G4D290127	MW-18B	MW-12B	Chloride	NA	NA	NA	NA	277	J
G4D290127	MW-18B	MW-12B	Sulfate	NA	NA	NA	NA	82.6	J
G4D290127	MW-18B	MW-12A	Chloride	NA	NA	NA	NA	109	J
G4D290127	MW-18B	MW-12A	Sulfate	NA	NA	NA	NA	171	J
G4D290127	MW-18B	MW-11B	Chloride	NA	NA	NA	NA	347	J
G4D290127	MW-18B	MW-11B	Sulfate	NA	NA	NA	NA	124	J
G4D290127	MW-18B	MW-11A	Chloride	NA	NA	NA	NA	158	J
G4D290127	MW-18B	MW-11A	Sulfate	NA	NA	NA	NA	198	J
G4D290127	MW-18B	MW-9B	Chloride	NA	NA	NA	NA	110	J
G4D290127	MW-18B	MW-16A	Chloride	NA	NA	NA	NA	160	J
G4D290127	MW-18B	MW-16A	Sulfate	NA	NA	NA	NA	164	J

Table F-4
Spike Recoveries Outside of Acceptable Limits
Various Investigations
Hookston Station
Pleasant Hill, California

Lab Package	MS/MSD Sample ID	Associated Sample	Compound	Recovery (%)	Limit (%)	RPD	RPD Limit	Result	ERM Qualifier
G4D290127	MW-18B	MW-24B	Chloride	NA	NA	NA	NA	230	J
G4D290127	MW-18B	MW-24B	Sulfate	NA	NA	NA	NA	219	J
G4D290127	MW-18B	MW-24A	Chloride	NA	NA	NA	NA	126	J
G4D290127	MW-18B	MW-24A	Sulfate	NA	NA	NA	NA	149	J
G4D290127	MW-18B	MW-17A	Chloride	NA	NA	NA	NA	169	J
G4D290127	MW-18B	MW-17A	Sulfate	NA	NA	NA	NA	135	J
G4D290127	MW-18B	MW-17B	Chloride	NA	NA	NA	NA	160	J
G4D290127	MW-18B	MW-17B	Sulfate	NA	NA	NA	NA	119	J
G4D290239	MW-18B	MW-19A	Chloride	NA	NA	NA	NA	111	J
G4D290239	MW-18B	MW-19A	Sulfate	NA	NA	NA	NA	139	J
G4D290239	MW-18B	MW-19B	Chloride	NA	NA	NA	NA	193	J
G4D290239	MW-18B	MW-19B	Sulfate	NA	NA	NA	NA	179	J
G4D290239	MW-18B	MW-19C	Chloride	NA	NA	NA	NA	166	J
G4D290239	MW-18B	MW-19C	Sulfate	NA	NA	NA	NA	58.7	J
G4D290239	MW-18B	MW-19C Dup	Chloride	NA	NA	NA	NA	159	J
G4D290239	MW-18B	MW-19C Dup	Sulfate	NA	NA	NA	NA	56	J
G4D290239	MW-18B	MW-14B	Chloride	NA	NA	NA	NA	180	J
G4D290239	MW-18B	MW-14B	Sulfate	NA	NA	NA	NA	120	J
G4D290239	MW-18B	MW-14A	Chloride	NA	NA	NA	NA	223	J
G4D290239	MW-18B	MW-14A	Sulfate	NA	NA	NA	NA	160	J
G4D290239	MW-18B	MW-18A	Chloride	NA	NA	NA	NA	178	J
G4D290239	MW-18B	MW-18A	Sulfate	NA	NA	NA	NA	213	J
G4D290239	MW-18B	MW-18B	Chloride	NA	NA	NA	NA	179	J
G4D290239	MW-18B	MW-18B	Sulfate	NA	NA	NA	NA	206	J
G4D290239	MW-18B	MW-26B	Chloride	NA	NA	NA	NA	79.5	J
G4D290239	MW-18B	MW-26B	Sulfate	NA	NA	NA	NA	187	J
September 2003 Source Area Investigation									
116242	B-59-2.5	NA	Trichloroethene	89/135	70-130	41	35	NA	NA
116242	Batch QC	NA	Copper	50	75-125	NA	NA	NA	NA
116242	Batch QC	NA	Lead	127	75-125	NA	NA	NA	NA
116255	B-59-2.5	NA	Trichloroethene	89/135	70-130	41	35	NA	NA
116255	B-59-15.5	NA	1,1-Dichloroethene	77.2/67.4	70-130	14	35	NA	NA
116255	B-90-5	NA	Trichlorobenzene	62.5/376	70-130	140	30	NA	NA
116257	Batch QC	NA	Copper	50	75-125	NA	NA	NA	NA
116257	Batch QC	NA	Lead	127	75-125	NA	NA	NA	NA
116257	Batch QC	NA	Mercury	70	80-120	NA	NA	NA	NA
116274	B-74-20.5	NA	Trichloroethene	0/0	70-130	0	35	NA	NA
116317	B-74-20.5	NA	Trichloroethene	0/0	70-130	0	35	NA	NA
116318	B-63-20.5	NA	Trichloroethene	329/291	70-130	12	35	NA	NA
116362	B-85-2.5	NA	1,1-Dichloroethene	55.3/58.4	70-130	5.5	35	NA	NA
116362	B-85-2.5	NA	Benzene	55.7/60.5	70-130	8.3	35	NA	NA
116362	B-85-2.5	NA	Trichloroethene	706/690	70-130	2.3	35	NA	NA
116362	B-85-2.5	NA	Toluene	57.1/64.3	70-130	12	35	NA	NA
116362	B-85-2.5	NA	Chlorobenzene	43.8/47.3	70-130	7.7	35	NA	NA
116362	Batch QC	NA	Silver	73	75-125	NA	NA	NA	NA
116362	Batch QC	NA	Mercury	79	80-120	NA	NA	NA	NA

Table F-4
Spike Recoveries Outside of Acceptable Limits
Various Investigations
Hookston Station
Pleasant Hill, California

Lab Package	MS/MSD Sample ID	Associated Sample	Compound	Recovery (%)	Limit (%)	RPD	RPD Limit	ERM Result	ERM Qualifier
116406	B-72-0.5	NA	1,1-Dichloroethene	69.8/71	70-130	1.7	35	NA	NA
116406	B-72-0.5	NA	Benzene	68/74.7	70-130	9.4	35	NA	NA
116406	B-72-0.5	NA	Trichloroethene	138/141	70-130	2.2	35	NA	NA
116406	B-72-0.5	NA	Chlorobenzene	64.9/71.4	70-130	9.5	35	NA	NA
116406	B-71-2.5	NA	1,1-Dichloroethene	78.6/69.9	70-130	12	35	NA	NA
116406	Batch QC	NA	Mercury	312	80-120	NA	NA	NA	NA
116460	MW-11B-2.5	NA	Chlorobenzene	64/63.3	70-130	1.1	35	NA	NA
116521	Batch QC	NA	Aroclor 1260	65/62.8	64-126	3.4	9	NA	NA
116521	Batch QC	NA	Mercury	312	80-120	NA	NA	NA	NA
116613	MW-12B-0.5	NA	Trichloroethene	80.2/161	70-130	67	35	NA	NA
116613	B-88-10.5	NA	1,1-Dichloroethene	33.4/59.3	70-130	56	35	NA	NA
116613	B-88-10.5	NA	Benzene	45.5/61.3	70-130	30	35	NA	NA
116613	B-88-10.5	NA	Trichloroethene	43.5/58	70-130	29	35	NA	NA
116613	B-88-10.5	NA	Toluene	42.7/58.6	70-130	31	35	NA	NA
116613	B-88-10.5	NA	Chlorobenzene	41.4/49.4	70-130	18	35	NA	NA
116613	B-62-5.0	NA	Trichloroethene	702/348	70-130	67	35	NA	NA
116613	MW-13A-0.5	NA	4-Nitrophenol	140/20.1	5-146	150	44	NA	NA
116613	MW-13A-0.5	NA	2,4-Dinitrotoluene	15.6/7.12	42-143	75	35	NA	NA
			October 2003 Soil Vapor Survey						
0310406	LCS (10/24/03)	NA	Chloroethane	149	70-130	NA	NA	NA	NA
0310406	LCS (10/24/03)	NA	1,2,4-Trichlorobenzene	61	70-130	NA	NA	NA	NA
0310406	LCS (10/24/03)	NA	Hexachlorobutadiene	59	70-130	NA	NA	NA	NA
0310406	LCS (10/27/03)	NA	Bromomethane	142	70-130	NA	NA	NA	NA
0310406	LCS (10/27/03)	NA	Chloroethane	134	70-130	NA	NA	NA	NA

Key:
J = Estimated detected result
RPD = Relative percent difference
Dup = Duplicate
LCS = Laboratory control sample
NA = Not applicable
Batch QC = The matrix spike sample was performed on a non-client sample and may not be indicative of the client sample matri:

Table F-5
Surrogate Recovery Results out of Acceptable Limits
Various Investigations
Hookston Station
Pleasant Hill, California

Lab Package	Sample ID	Method	Surrogate	Recovery (%)	Limit (%)	ERM Qualifier
2nd Quarter 2004 Ground Water Monitoring						
G4D230311	MW-20A	VOC	1,2-Dichloroethane-d4	125	80-124	None*
G4D230311	MW-20A RE	VOC	1,2-Dichloroethane-d4	126	80-124	J
G4D230311	MW-20B	VOC	Dibromofluoromethane	137	78-131	None*
G4D230311	MW-20B	VOC	1,2-Dichloroethane-d4	139	80-124	None*
G4D230311	MW-15A	VOC	Dibromofluoromethane	144	78-131	None*
G4D230311	MW-15A	VOC	1,2-Dichloroethane-d4	150	80-124	None*
G4F100181	Trip blank	VOC	1,2-Dichloroethane-d4	127	80-124	NA
G4F100181	MW-23A	VOC	Dibromofluoromethane	136	78-131	J
G4F100181	MW-23A	VOC	1,2-Dichloroethane-d4	143	80-124	J
September/October 2001 GeoProbe Investigation						
154461	B-46-20	VOC	1,2-Dichloroethane-d4	151	78-123	NA
October/November 2001 CPT Investigation						
155358	Trip blank	VOC	Bromofluorobenzene	128	80-115	NA
March 2002 CPT Investigation						
157835	CPT-19-84.5	VOC	Dibromofluoromethane	123	80-121	NA
September 2003 Source Area Investigation						
116242	B-92-2.5	VOC	Trifluorotoluene	71	75-125	J/UJ
116242	B-92-5.5	VOC	Trifluorotoluene	74.1	75-125	J/UJ
116255	B-59-5.5	VOC	Trifluorotoluene	72.6	75-125	J/UJ
116255	B-64-2.5	VOC	Trifluorotoluene	67.9	75-125	J/UJ
116255	B-64-6.0	VOC	Trifluorotoluene	74.4	75-125	J/UJ
116255	B-64-30.5	VOC	Trifluorotoluene	73.8	75-125	J/UJ
116257	B-70-0.5	SVOC	Phenol-d5	144	39-140	None
116257	B-69-0.5	SVOC	Phenol-d5	155	39-140	None
116272	B-60-0.5	VOC	Trifluorotoluene	71.9	75-125	J/UJ
116272	B-60-2.5	VOC	Trifluorotoluene	63	75-125	J/UJ
116272	B-61-0.5	VOC	Trifluorotoluene	68.8	75-125	J/UJ

Table F-5
Surrogate Recovery Results out of Acceptable Limits
Various Investigations
Hookston Station
Pleasant Hill, California

Lab Package	Sample ID	Method	Surrogate	Recovery (%)	Limit (%)	ERM Qualifier
116272	B-61-2.5	VOC	Trifluorotoluene	72.8	75-125	J/UJ
116272	B-63-0.5	VOC	Trifluorotoluene	50.3	75-125	J/UJ
116272	B-63-2.5	VOC	Trifluorotoluene	72.2	75-125	J/UJ
116317	B-67-55	VOC	Trifluorotoluene	42.3	75-125	J/UJ
116362	B-82-2.5	VOC	Trifluorotoluene	71.8	75-125	J/UJ
116362	B-81-2.5	VOC	Trifluorotoluene	73.2	75-125	J/UJ
116362	B-81-30D	VOC	Ethylbenzene-d10	123	80-120	J
116362	B-79-2.5	VOC	Trifluorotoluene	64.1	75-125	J/UJ
116362	B-98-2.5	VOC	Trifluorotoluene	71.3	75-125	J/UJ
116406	B-79-30	VOC	Ethylbenzene-d10	122	80-120	J
116521	B-94-55	VOC	Trifluorotoluene	121	80-120	J
116613	B-62-0.5	VOC	Trifluorotoluene	129	75-125	J
December 2003 Soil Investigation						
2003-12-0441	B-101-2.5	VOC	1,2-Dichloroethane-d4	140.2	70-121	NA
2003-12-0441	B-103-5.5	VOC	1,2-Dichloroethane-d4	123.6	70-121	NA
2003-12-0496	B-104-2.5	VOC	Toluene-d8	75.4	81-117	J/UJ
2003-12-0496	B-105-0.5	VOC	1,2-Dichloroethane-d4	126.4	70-121	NA
2003-12-0496	B-105-5.5	VOC	1,2-Dichloroethane-d4	131.2	70-121	NA
2003-12-0496	B-105-10.5	VOC	1,2-Dichloroethane-d4	128.2	70-121	NA
2003-12-0496	B-105-15.5	VOC	1,2-Dichloroethane-d4	127.1	70-121	NA

Key:
J = Estimated detected result
UJ = Nondetected, estimated report limit
J/UJ = Detected results are estimated; nondetected results are estimated at the report limit
RE = Reanalysis
None* = Use reanalyzed sample results
SVOC = Semivolatile organic compounds
VOC = Volatile organic compounds

Table F-6
Field Duplicate Results and Calculated Relative Percent Differences
Various Investigations
Hookston Station
Pleasant Hill, California

Lab Package	Sample ID	Compound	Concentration Sample	Concentration Duplicate	Report Limit	Units	RPD (%)
4th Quarter 2001 Ground Water Monitoring							
156194	MW-5	1,1-Dichloroethene	<0.5	0.5	0.5	µg/L	NC
156194	MW-5	Trichloroethene	6	16	0.5	µg/L	90.9
3rd Quarter 2001 Ground Water Monitoring							
154312	MW-1D	1,1-Dichloroethene	16	17	2	µg/L	6.1
154312	MW-1D	1,1-Dichloroethane	7	6.5	2	µg/L	7.4
154312	MW-1D	cis-1,2-Dichloroethene	9.6	9	2	µg/L	6.5
154312	MW-1D	Benzene	3.1	3.6	2	µg/L	14.9
154312	MW-1D	Trichloroethene	520	530	2	µg/L	1.9
3rd Quarter 2002 Ground Water Monitoring							
G2I260274	MW-5	Acetone	7.6	6.4	10	µg/L	17.1
G2I260274	MW-5	Trichloroethene	4.7	4.3	1	µg/L	8.9
G2J040385	Len Hester Park Irrigation Well	1,1-Dichloroethane	4.8	4.5	20	µg/L	6.5
G2J040385	Len Hester Park Irrigation Well	cis-1,2-Dichloroethene	26	27	20	µg/L	3.8
G2J040385	Len Hester Park Irrigation Well	1,2-Dichloroethene	18	21	20	µg/L	15.4
G2J040385	Len Hester Park Irrigation Well	Tetrachloroethene	2.7	4.1	20	µg/L	41.2
G2J040385	Len Hester Park Irrigation Well	Trichloroethene	880	930	20	µg/L	5.5
4th Quarter 2002 Ground Water Monitoring							
G2K150313	MW-3D	Trichloroethene	1400	1400	50	µg/L	0
G2K150313	MW-3D	1,1-Dichloroethene	81	79	50	µg/L	2.5
1st Quarter 2003 Ground Water Monitoring							
G3B200221	MW-03	Bromomethane	5.9	6.2	25	µg/L	5.0
G3B200221	MW-03	1,1-Dichloroethane	9.5	4	25	µg/L	81.5
G3B200221	MW-03	cis-1,1-Dichloroethene	140	5.3	25	µg/L	185.4
G3B200221	MW-03	trans-1,1-Dichloroethene	5.4	<25	25	µg/L	NC
G3B200221	MW-03	1,1-Dichloroethene	46	77	25	µg/L	50.4
G3B200221	MW-03	Trichloroethene	1700	1100	25	µg/L	42.9

Table F-6
Field Duplicate Results and Calculated Relative Percent Differences
Various Investigations
Hookston Station
Pleasant Hill, California

Lab Package	Sample ID	Compound	Concentration Sample	Concentration Duplicate	Report Limit	Units	RPD (%)
2nd Quarter 2003 Ground Water Monitoring							
G3E070231	MW-05	Acetone	2.7	3.2	10	µg/L	16.9
G3E070231	MW-05	Trichloroethene	1.9	3.4	1	µg/L	56.6
3rd Quarter 2003 Ground Water Monitoring							
G3G230329	MW-3D	1,1-Dichloroethane	6.2	<50	50	µg/L	NC
G3G230329	MW-3D	cis-1,1-Dichloroethene	6.6	<50	50	µg/L	NC
G3G230329	MW-3D	1,1-Dichloroethene	90	96	50	µg/L	6.5
G3G230329	MW-3D	Trichloroethene	1200	1200	50	µg/L	0
4th Quarter 2003 Ground Water Monitoring							
G3J290266	MW-2D	Acetone	3.3	2.8	10	µg/L	16.4
G3J290266	MW-2D	2-Butanone	1.5	1.5	2	µg/L	0
1st Quarter 2004 Ground Water Monitoring							
120085	MW-16A	cis-1,2-Dichloroethene	9.34	8.84	10	µg/L	5.5
120085	MW-16A	1,1,1-Trichloroethane	8.95	8.5	10	µg/L	5.2
120085	MW-16A	Trichloroethene	284	279	10	µg/L	1.8
120085	MW-7*	1,1-Dichloroethene	<10	2.32	10/1	µg/L	NC
120085	MW-7*	Trichloroethene	30.8	28	10/1	µg/L	9.5
120085	MW-7*	Tetrac hloroethene	280	245	10/1	µg/L	13.3
2nd Quarter 2004 Ground Water Monitoring							
G4D210166	MW-8B	Acetone	6.9	5.7	25	µg/L	19.0
G4D210166	MW-8B	Benzene	0.88	0.61	2.5	µg/L	36.2
G4D210166	MW-8B	cis-1,2-Dichloroethene	1.1	0.74	2.5	µg/L	39.1
G4D210166	MW-8B	1,1-Dichloroethene	1.8	1.9	2.5	µg/L	5.4
G4D210166	MW-8B	Trichloroethene	93	86	2.5	µg/L	7.8
G4D210166	MW-8B	Silver	0.000091	0.000045	0.001	mg/L	67.6
G4D210166	MW-8B	Arsenic	0.0075	0.0066	0.002	mg/L	12.8
G4D210166	MW-8B	Barium	0.063	0.06	0.001	mg/L	4.9
G4D210166	MW-8B	Boron	0.2	0.17	0.05	mg/L	16.2
G4D210166	MW-8B	Cadmium	0.0042	0.004	0.001	mg/L	4.9
G4D210166	MW-8B	Cobalt	0.0029	0.0028	0.001	mg/L	3.5
G4D210166	MW-8B	Chromium	0.025	0.022	0.002	mg/L	12.8
G4D210166	MW-8B	Copper	0.023	0.022	0.002	mg/L	4.4

Table F-6
Field Duplicate Results and Calculated Relative Percent Differences
Various Investigations
Hookston Station
Pleasant Hill, California

Lab Package	Sample ID	Compound	Concentration Sample	Concentration Duplicate	Report Limit	Units	RPD (%)
G4D210166	MW-8B	Molybdenum	0.0022	0.0016	0.001	mg/L	31.6
G4D210166	MW-8B	Nickel	0.015	0.013	0.002	mg/L	14.3
G4D210166	MW-8B	Lead	0.0077	0.0077	0.001	mg/L	0
G4D210166	MW-8B	Antimony	0.003	0.003	0.002	mg/L	0
G4D210166	MW-8B	Vanadium	0.018	0.017	0.01	mg/L	5.7
G4D210166	MW-8B	Zinc	0.083	0.079	0.005	mg/L	4.9
G4D210166	MW-8B	Calcium	46.8	45.4	0.5	mg/L	3.0
G4D210166	MW-8B	Potassium	2.3	2.3	1	mg/L	0
G4D210166	MW-8B	Magnesium	19.7	19.9	0.5	mg/L	1.0
G4D210166	MW-8B	Sodium	12.3	10.4	0.5	mg/L	16.7
G4D210166	MW-8B	Hardness	198	195	2.5	mg/L	1.5
G4D210166	MW-8B	Chloride	62.4	61.8	5	mg/L	1.0
G4D210166	MW-8B	Nitrate as N	0.52	0.54	0.1	mg/L	3.8
G4D210166	MW-8B	Sulfate	22.8	22.2	2	mg/L	2.7
G4D210166	MW-8B	Total alkalinity	64.8	67	5	mg/L	3.3
G4D210166	MW-8B	Total organic carbon	2.5	2.5	1	mg/L	0
G4D210166	MW-8B	Carbon dioxide	0.68	0.65	0.17	mg/L	4.5
G4D210166	MW-8B	Methane	0.00089	0.0011	0.001	mg/L	21.1
G4D220244	MW-4	Acetone	14	<100	100	µg/L	NC
G4D220244	MW-4	cis-1,2-Dichloroethene	11	11	10	µg/L	0
G4D220244	MW-4	trans-1,2-Dichloroethene	6.7	7.3	10	µg/L	8.6
G4D220244	MW-4	Ethylbenzene	93	100	10	µg/L	7.3
G4D220244	MW-4	Tetrachloroethene	53	66	10	µg/L	21.8
G4D220244	MW-4	Trichlorethene	23	26	10	µg/L	12.2
G4D220244	MW-4	Vinyl chloride	17	18	10	µg/L	5.7
G4D220244	MW-4	Calcium	167	162	0.5	mg/L	3.0
G4D220244	MW-4	Potassium	9	8.4	1	mg/L	6.9
G4D220244	MW-4	Magnesium	116	111	0.5	mg/L	4.4
G4D220244	MW-4	Sodium	235	228	0.5	mg/L	3.0
G4D220244	MW-4	Hardness	893	863	2.5	mg/L	3.4
G4D220244	MW-4	Silver	0.00036	0.00031	0.001	mg/L	14.9
G4D220244	MW-4	Arsenic	0.045	0.04	0.02	mg/L	11.8
G4D220244	MW-4	Barium	0.5	0.47	0.001	mg/L	6.2
G4D220244	MW-4	Beryllium	0.0016	0.0016	0.001	mg/L	0
G4D220244	MW-4	Boron	3.7	3.7	0.05	mg/L	0
G4D220244	MW-4	Cadmium	0.0031	0.0025	0.001	mg/L	21.4
G4D220244	MW-4	Cobalt	0.038	0.035	0.001	mg/L	8.2
G4D220244	MW-4	Chromium	0.14	0.13	0.002	mg/L	7.4
G4D220244	MW-4	Copper	0.051	0.045	0.002	mg/L	12.5
G4D220244	MW-4	Molybdenum	0.025	0.024	0.001	mg/L	4.1

Table F-6
Field Duplicate Results and Calculated Relative Percent Differences
Various Investigations
Hookston Station
Pleasant Hill, California

Lab Package	Sample ID	Compound	Concentration		Report		
			Sample	Duplicate	Limit	Units	RPD (%)
G4D220244	MW-4	Nickel	0.17	0.16	0.002	mg/L	6.1
G4D220244	MW-4	Lead	0.032	0.028	0.001	mg/L	13.3
G4D220244	MW-4	Antimony	0.0014	0.0012	0.002	mg/L	15.4
G4D220244	MW-4	Selenium	0.02	0.019	0.002	mg/L	5.1
G4D220244	MW-4	Thallium	0.0007	0.00055	0.001	mg/L	24.0
G4D220244	MW-4	Vanadium	0.18	0.17	0.01	mg/L	5.7
G4D220244	MW-4	Zinc	0.18	0.16	0.005	mg/L	11.8
G4D220244	MW-4	Chloride	212	218	20	mg/L	2.8
G4D220244	MW-4	Nitrate as N	1.6	1.5	0.05	mg/L	6.5
G4D220244	MW-4	Sulfate	184	183	10	mg/L	0.5
G4D220244	MW-4	Total alkalinity	737	750	5	mg/L	1.7
G4D220244	MW-4	Total organic carbon	4.4	4.8	1	mg/L	8.7
G4D270201	MW-10B	1,1-Dichloroethene	8.1	8.8	5	µg/L	8.3
G4D270201	MW-10B	Trichloroethene	150	160	5	µg/L	6.5
G4D270201	MW-10B	Barium	0.085	0.082	0.001	mg/L	3.6
G4D270201	MW-10B	Boron	0.49	0.41	0.05	mg/L	17.8
G4D270201	MW-10B	Cadmium	0.013	0.014	0.001	mg/L	7.4
G4D270201	MW-10B	Cobalt	0.0016	0.0015	0.001	mg/L	6.5
G4D270201	MW-10B	Chromium	0.0042	0.0031	0.002	mg/L	30.1
G4D270201	MW-10B	Copper	0.012	0.012	0.002	mg/L	0
G4D270201	MW-10B	Molybdenum	0.0026	0.0026	0.001	mg/L	0
G4D270201	MW-10B	Nickel	0.011	0.011	0.002	mg/L	0
G4D270201	MW-10B	Lead	0.0056	0.0061	0.001	mg/L	8.5
G4D270201	MW-10B	Antimony	0.0024	0.0029	0.002	mg/L	18.9
G4D270201	MW-10B	Zinc	0.22	0.22	0.005	mg/L	0
G4D270201	MW-10B	Calcium	39	36.9	0.5	mg/L	5.5
G4D270201	MW-10B	Potassium	21.1	21	1	mg/L	0.5
G4D270201	MW-10B	Magnesium	14	12.4	0.5	mg/L	12.1
G4D270201	MW-10B	Sodium	53.5	49.6	0.5	mg/L	7.6
G4D270201	MW-10B	Hardness	155	143	2.5	mg/L	8.1
G4D270201	MW-10B	Chloride	29.2	31.5	10	mg/L	7.6
G4D270201	MW-10B	Nitrate as N	4	4.1	0.5	mg/L	2.5
G4D270201	MW-10B	Sulfate	33.8	35	10	mg/L	3.5
G4D270201	MW-10B	Total alkalinity	153	160	5	mg/L	4.5
G4D270201	MW-10B	Total organic carbon	17.2	16.7	1	mg/L	2.9
G4D290239	MW-19C	Acetone	1.9	1.8	10	µg/L	5.4
G4D290239	MW-19C	Chloromethane	0.28	0.28	1	µg/L	0
G4D290239	MW-19C	Trichloroethene	0.33	<1	1	µg/L	NC
G4D290239	MW-19C	Calcium	76.7	77	0.5	mg/L	0.4

Table F-6
Field Duplicate Results and Calculated Relative Percent Differences
Various Investigations
Hookston Station
Pleasant Hill, California

Lab Package	Sample ID	Compound	Concentration Sample	Concentration Duplicate	Report Limit	Units	RPD (%)
G4D290239	MW-19C	Potassium	2.4	2.3	1	mg/L	4.3
G4D290239	MW-19C	Magnesium	51.2	50.2	0.5	mg/L	2.0
G4D290239	MW-19C	Sodium	122	119	0.5	mg/L	2.5
G4D290239	MW-19C	Hardness	402	399	2.5	mg/L	0.7
G4D290239	MW-19C	Silver	0.000032	0.00003	0.001	mg/L	6.5
G4D290239	MW-19C	Arsenic	0.0017	0.0017	0.002	mg/L	0
G4D290239	MW-19C	Barium	36.7	32.2	0.01	mg/L	13.1
G4D290239	MW-19C	Boron	2.6	2.6	0.05	mg/L	0
G4D290239	MW-19C	Cadmium	0.00025	0.00022	0.001	mg/L	12.8
G4D290239	MW-19C	Cobalt	0.003	0.0029	0.001	mg/L	3.4
G4D290239	MW-19C	Chromium	0.01	0.0094	0.002	mg/L	6.2
G4D290239	MW-19C	Copper	0.015	0.015	0.002	mg/L	0
G4D290239	MW-19C	Molybdenum	0.0031	0.003	0.001	mg/L	3.3
G4D290239	MW-19C	Nickel	0.0097	0.0099	0.002	mg/L	2.0
G4D290239	MW-19C	Lead	0.013	0.014	0.001	mg/L	7.4
G4D290239	MW-19C	Antimony	0.0045	0.0051	0.002	mg/L	12.5
G4D290239	MW-19C	Selenium	0.002	<0.002	0.002	mg/L	NC
G4D290239	MW-19C	Vanadium	0.014	0.01	0.01	mg/L	33.3
G4D290239	MW-19C	Zinc	1.6	0.84	0.005	mg/L	62.3
G4D290239	MW-19C	Chloride	166	159	10	mg/L	4.3
G4D290239	MW-19C	Sulfate	58.7	56	10	mg/L	4.7
G4D290239	MW-19C	Total alkalinity	370	376	5	mg/L	1.6
G4D290239	MW-19C	Total organic carbon	3.4	3.3	1	mg/L	3.0
September/October 2001 GeoProbe Investigation							
154395	B-57-32	1,1-Dichloroethene	1.1	1	0.5	µg/L	9.5
154395	B-57-32	Trichloroethene	19	19	0.5	µg/L	0
154395	B-57-32	Tetrachloroethene	0.6	0.6	0.5	µg/L	0
154461	B-50-24	Vinyl chloride	<4.2	4.2	4.2	µg/L	NC
154461	B-50-24	1,1-Dichloroethene	28	28	4.2	µg/L	0
154461	B-50-24	1,1-Dichloroethane	8.7	8.7	4.2	µg/L	0
154461	B-50-24	cis-1,1-Dichloroethene	72	68	4.2	µg/L	5.7
154461	B-50-24	Trichloroethene	1300	1200	4.2	µg/L	8.0
154596	B-52-22	1,1-Dichloroethene	38	35	7.1	µg/L	8.2
154596	B-52-22	1,1-Dichloroethane	8.9	8.7	7.1	µg/L	2.3
154596	B-52-22	cis-1,1-Dichloroethene	74	73	7.1	µg/L	1.4
154596	B-52-22	Trichloroethene	2000	2000	7.1	µg/L	0

Table F-6
Field Duplicate Results and Calculated Relative Percent Differences
Various Investigations
Hookston Station
Pleasant Hill, California

Lab Package	Sample ID	Compound	Concentration		Report Limit	Units	RPD (%)
			Sample	Duplicate			
October/November 2001 CPT Investigation							
155129	CPT-12-87	Trichloroethene	ND	0.6	0.5	µg/L	NC
155129	CPT-14-54	1,1-Dichloroethene	13	11	2.0	µg/L	16.7
155129	CPT-14-54	1,1-Dichloroethane	2	ND	2.0	µg/L	NC
155129	CPT-14-54	cis-1,2-Dichloroethene	25	25	2.0	µg/L	0
155129	CPT-14-54	Trichloroethene	600	600	2.0	µg/L	0
154947	CPT-4-65	1,1-Dichloroethene	11	10	1.3	µg/L	9.5
154947	CPT-4-65	cis-1,2-Dichloroethene	1.3	1.2	1.3	µg/L	8.0
154947	CPT-4-65	Trichloroethene	240	230	1.3	µg/L	4.3
154395	B-57-32	1,1-Dichloroethene	1.1	1	0.5	µg/L	9.5
154395	B-57-32	Trichloroethene	19	19	0.5	µg/L	0
154395	B-57-32	Tetrachloroethene	0.6	0.6	0.5	µg/L	0
154461	B-50-24	Vinyl chloride	ND	4.2	4.2	µg/L	NC
154461	B-50-24	1,1-Dichloroethene	28	28	4.2	µg/L	0
154461	B-50-24	1,1-Dichloroethane	8.7	8.7	4.2	µg/L	0
154461	B-50-24	cis-1,2-Dichloroethene	72	68	4.2	µg/L	5.7
154461	B-50-24	Trichloroethene	1300	1200	4.2	µg/L	8.0
September 2002 CPT Investigation							
G2I190238	CPT-23-50	Acetone	<50	11	50	µg/L	NC
G2I190238	CPT-23-50	Bromodichloromethane	2.7	<5	5	µg/L	NC
G2I190238	CPT-23-50	Bromomethane	2.6	3.2	5	µg/L	20.7
G2I190238	CPT-23-50	Chloroform	0.7	<5	5	µg/L	NC
G2I190238	CPT-23-50	1,1-Dichloroethane	5.7	4.7	5	µg/L	19.2
G2I190238	CPT-23-50	cis-1,2-Dichloroethene	1.5	1.1	5	µg/L	30.8
G2I190238	CPT-23-50	1,1-Dichloroethene	71	55	5	µg/L	NC
G2I190238	CPT-23-50	Trichloroethene	260	220	5	µg/L	16.7
G2I190238	CPT-22-18	Acetone	<200	29	200	µg/L	NC
G2I190238	CPT-22-18	cis-1,2-Dichloroethene	14	20	20	µg/L	35.3
G2I190238	CPT-22-18	Bromomethane	12	<20	20	µg/L	NC
G2I190238	CPT-22-18	Tetrachloroethene	940	1100	20	µg/L	15.7
G2I190238	CPT-22-18	Trichloroethene	60	69	20	µg/L	14.0
G2I270238	CPT-32-49	Acetone	3.3	2.4	10	µg/L	31.6

Table F-6
Field Duplicate Results and Calculated Relative Percent Differences
Various Investigations
Hookston Station
Pleasant Hill, California

Lab Package	Sample ID	Compound	Concentration Sample	Concentration Duplicate	Report Limit	Units	RPD (%)
September 2003 Source Area Investigation							
116255	B-85	1,1-Dichloroethene	55.5	65.3	100	µg/L	16.2
116255	B-85	2-Butanone	413	<500	500	µg/L	NC
116255	B-85	cis-1,2-Dichloroethene	148	138	100	µg/L	7.0
116255	B-85	Trichloroethene	2580	2460	100	µg/L	4.8
116362	B-81-30	1,1-Dichloroethene	88	70	100	µg/L	22.8
116362	B-81-30	cis-1,2-Dichloroethene	199	165	100	µg/L	18.7
116362	B-81-30	Trichloroethene	2890	2520	100	µg/L	13.7
116521	B-94-55	1,1-Dichloroethene	41.2	47.9	10	µg/L	15.0
116521	B-94-55	Trichloroethene	380	473	10	µg/L	21.8
October 2003 Soil Vapor Survey							
0310406	ASV-07	1,1-Dichloroethene	60	61	9.4	µg/m^3	1.7
0310406	ASV-07	1,1-Dichloroethane	15	14	9.6	µg/m^3	6.9
0310406	ASV-07	cis-1,2-Dichloroethane	700	710	9.4	µg/m^3	1.4
0310406	ASV-07	Benzene	20	19	7.6	µg/m^3	5.1
0310406	ASV-07	Trichloroethene	5000	5000	13	µg/m^3	0
0310406	ASV-07	Toluene	20	20	8.9	µg/m^3	0
0310406	ASV-07	m,p-Xylene	11	10	10	µg/m^3	9.5
0310406	ASV-07	1,3-Butadiene	53	54	5.2	µg/m^3	1.9
0310406	ASV-07	Hexane	20	20	8.4	µg/m^3	0
0310406	ASV-07	Cyclohexane	15	15	8.2	µg/m^3	0
0310406	ASV-07	Heptane	14	16	9.7	µg/m^3	13.3
0310406	ASV-07	Acetone	340	340	22	µg/m^3	0
0310406	ASV-07	trans-1,2-Dichloroethene	110	110	38	µg/m^3	0
0310406	ASV-07	2-Butanone	76	80	28	µg/m^3	5.1
0310406	ASV-07	Butane	150	150	22	µg/m^3	0
0310406	ASV-12	Benzene	7.9	8.5	3.1	µg/m^3	7.3
0310406	ASV-12	Trichloroethene	7.6	6.9	5.2	µg/m^3	9.7
0310406	ASV-12	Toluene	18	16	3.6	µg/m^3	11.8
0310406	ASV-12	Ethylbenzene	110	100	4.2	µg/m^3	9.5
0310406	ASV-12	m,p-Xylene	500	500	4.2	µg/m^3	0
0310406	ASV-12	o-Xylene	260	250	4.2	µg/m^3	3.9
0310406	ASV-12	1,2,4-Trimethylbenzene	13	<4.8	4.8	µg/m^3	NC

Table F-6
Field Duplicate Results and Calculated Relative Percent Differences
Various Investigations
Hookston Station
Pleasant Hill, California

Lab Package	Sample ID	Compound	Concentration Sample	Concentration Duplicate	Report Limit	Units	RPD (%)
0310406	ASV-12	1,3-Butadiene	8.4	7.8	2.1	$\mu g/m^3$	7.4
0310406	ASV-12	Hexane	95	100	3.4	$\mu g/m^3$	5.1
0310406	ASV-12	Cyclohexane	6	6.7	3.3	$\mu g/m^3$	11.0
0310406	ASV-12	Heptane	11	10	4	$\mu g/m^3$	9.5
0310406	ASV-12	Acetone	320	320	9.2	$\mu g/m^3$	0
0310406	ASV-12	Carbon disulfide	14	<12	12	$\mu g/m^3$	NC
0310406	ASV-12	2-Butanone	87	85	11	$\mu g/m^3$	2.3
0310406	ASV-12	Butane	68	70	9.2	$\mu g/m^3$	2.9
January/February 2004 Indoor Air Survey							
0401258	1208 Hookston	1,1-Dichloroethene	<0.064	0.062	0.064	$\mu g/m^3$	NC
0401258	1208 Hookston	Trichloroethene	0.19	0.18	0.17	$\mu g/m^3$	5.4
0401258	1009 Stimel	1,1-Dichloroethene	0.067	0.075	0.066	$\mu g/m^3$	11.3
0401258	1009 Stimel	Trichloroethene	3.5	3.8	0.18	$\mu g/m^3$	8.2

Key:
NC = Not calculated, one result was detected and the other result was nondetected
µg/L = Micrograms per liter
mg/L = Milligrams per liter
$\mu g/m^3$ = Micrograms per cubic meter
RPD = Relative percent difference
MW-7* = The original sample was analyzed at a 10x dilution and the duplicate was analyzed undiluted.
CPT = Cone penetration testing

Table F-7
Suspect Compound Quantitation
Various Investigations
Hookston Station
Pleasant Hill, California

Lab Package	Sample ID	Compound	Reported Concentration	ERM Qualifier	Notes
September/October 2002 CPT Investigation					
G2I190238	CPT-23-50D	Trichloroethene	170	NA	Concentration exceeds calibration; use reanalyzed sample result
G2I190238	CPT-23-30	Tetrachloroethene	410	NA	Concentration exceeds calibration; use reanalyzed sample result
G2I270328	CPT-25-52	Tetrachloroethene	510	NA	Concentration exceeds calibration; use reanalyzed sample result
1st Quarter 2003 Ground Water Monitoring					
G3B200221	MW-02D	Bromomethane	0.18	J	% Difference was exceeded in the calibration
G3B200221	MW-03D	Bromomethane	<25	UJ	% Difference was exceeded in the calibration
G3B200221	MW-06	Bromomethane	0.18	J	% Difference was exceeded in the calibration
G3B200221	MW-05	Bromomethane	0.3	J	% Difference was exceeded in the calibration
G3B200221	MW-07	Bromomethane	2.3	J	% Difference was exceeded in the calibration
G3B200221	MW-01	Bromomethane	1.9	J	% Difference was exceeded in the calibration
G3B200221	MW-04	Bromomethane	0.28	J	% Difference was exceeded in the calibration
G3B200221	MW-01D upper	Bromomethane	4.8	J	% Difference was exceeded in the calibration
G3B200221	MW-03	Bromomethane	5.9	J	% Difference was exceeded in the calibration
G3B200221	MW-03 Dup	Bromomethane	6.2	J	% Difference was exceeded in the calibration
G3B200221	MW-01D middle	Bromomethane	20	J	% Difference was exceeded in the calibration
G3B200221	MW-01D lower	Bromomethane	<2	UJ	% Difference was exceeded in the calibration
1st Quarter 2004 Ground Water Monitoring					
120085	MW-7 Dup	Tetrachloroethene	245	J	Concentration exceeds the calibration limit; no reanalysis
120085	MW-12B	cis-1,2-Dichloroethene	196	J	Concentration exceeds the calibration limit; no reanalysis
120085	MW-12B	Trichloroethene	161	J	Concentration exceeds the calibration limit; no reanalysis
120085	MW-4	Tetrachloroethene	1.93	J	Possible carryover from a previous sample
September 2003 Source Area Investigation					
116257	B-83-2.5	Trichloroethene	435	J	Concentration exceeds the calibration limit; no reanalysis
116257	B-83-5.5	Trichloroethene	82.2	J	Concentration exceeds the calibration limit; no reanalysis
116317	B-63-5.5	Trichloroethene	213	J	Concentration exceeds the calibration limit; no reanalysis
116613	B-62-2.5	Trichloroethene	1120	J	Concentration exceeds the calibration limit; no reanalysis

Key:
J = Estimated detected result
UJ = Nondetected, estimated report limit
Dup = Duplicate sample

Table F-8
Suspect TPH Results
Various Investigations
Hookston Station
Pleasant Hill, California

Lab Package	Sample ID	Compound	Reported Concentration	ERM Qualifier	Notes
1st Quarter 2001 Ground Water Monitoring					
150839	MW-1	Gasoline	240	NJ	Unknown single peak or peaks
150854	MW-3D Dup	Gasoline	370	NJ	Unknown single peak or peaks
	MW-3D	Gasoline	390	NJ	Unknown single peak or peaks
150854	MW-1D	Gasoline	320	NJ	Unknown single peak or peaks
150854	MW-3	Gasoline	920	NJ	Unknown single peak or peaks
150854	MW-7 Diff Dup	Gasoline	90	NJ	Unknown single peak or peaks
150854	MW-7	Gasoline	130	NJ	Unknown single peak or peaks
4th Quarter 2001 Ground Water Monitoring					
157690	MW-4	Gasoline	240	NJ	Chromatogram does not resemble gasoline
September 2003 Source Area Investigation					
116257	B-70-0.5	Diesel	166	NJ	Chromatogram does not resemble diesel
116257	B-69-0.5	Diesel	70	NJ	Chromatogram does not resemble diesel
116521	B-94-0.5	Diesel	55.5	NJ	Chromatogram does not resemble diesel
116521	B-73-0.5	Diesel	985	NJ	Chromatogram does not resemble diesel
116613	MW-13A-0.5	Diesel	2080	NJ	Overlap from motor oil range

Key:
NJ = Estimated value - chromatogram did not resemble the standard hydrocarbon pattern
Dup = Duplicate sample
Diff Dup = Diffusion Duplicate Sample

Appendix G
Laboratory Analytical Reports
(on separate compact disk)